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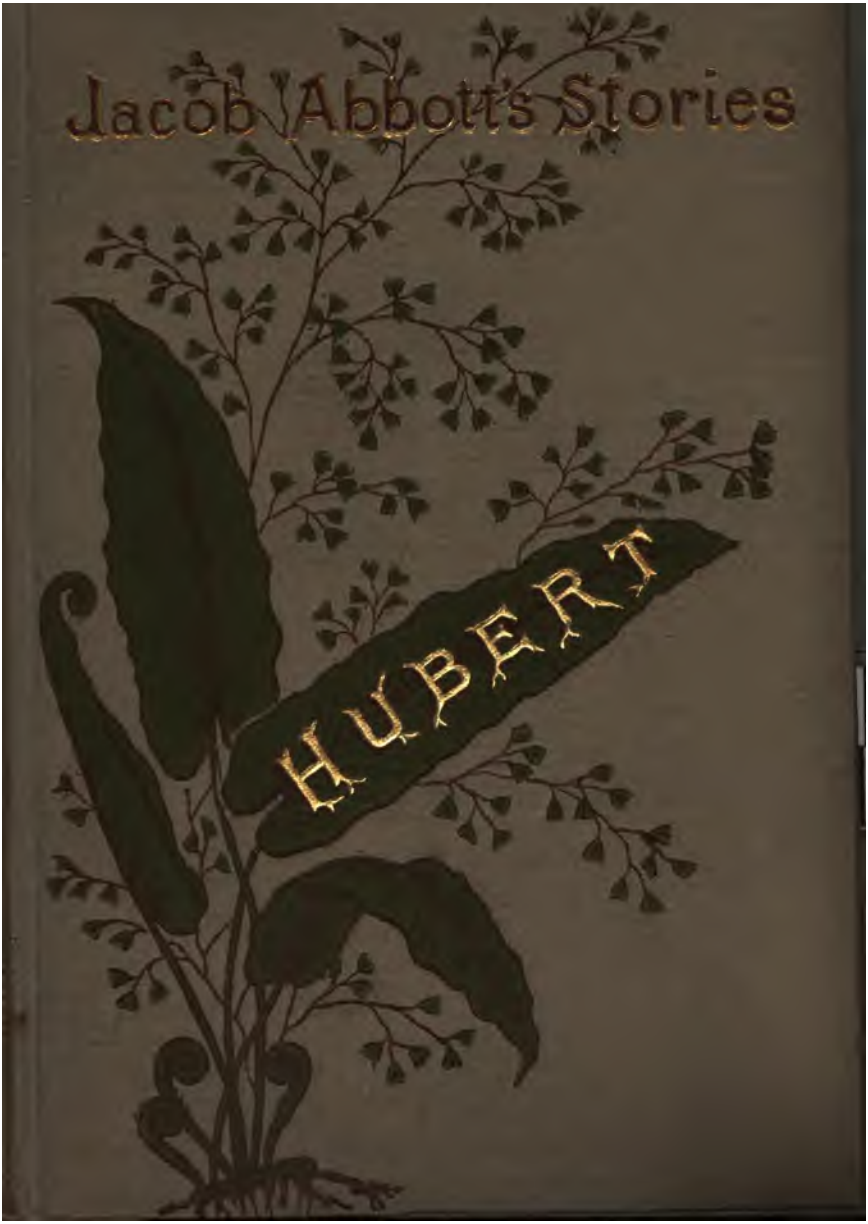

Frontispiece.

Page 50.

HUBERT

BY

JACOB ABBOTT

AUTHOR OF "THE YOUNG CHRISTIAN," ETC., ETC.

A NEW EDITION

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HUBERT.

CHAPTER I.

GETTING SETTLED.

HUBERT was an orphan. At the time when this story begins he was about ten years old. He was Georgie's cousin. He came about this time to live with his Aunt Cornelia.

His Aunt Cornelia was very kind to him, in her way, though I do not think her way was in all respects the best way. How this was, however, will appear more fully by-and-by. She meant at any rate to be kind to him, as the orphan son of her sister, in the most faithful manner.

Hubert's aunt, Cornelia, lived in a large and handsome house. Hubert had a very pleasant room in this house, all to himself. It was in the second story of a kind of wing, and the windows opened out over the roof of a piazza which was about two or three feet down from the sills of the windows, so that it would not be difficult to get

down to it, from Hubert's room, when a window was open.

On the day when Hubert first came to live with his aunt, Robert, a coloured man who was in her service, took his trunk up to his room, while he and his aunt followed, his aunt leading him by the hand.

'Put the trunk down here by the window,' said his aunt, 'and I will send Maria presently to put the things away in the bureau drawers.'

'I can put them away in the drawers myself,' said Hubert.

'Oh, no, my dear,' replied his aunt; 'you could not put them away properly. Maria will put them away for you, and arrange them all nicely. She will take all the care of your things for you.'

Maria was Robert's sister, and was the chambermaid.

'Maria is coming up in a few minutes,' continued his aunt, 'and she will put your things away and arrange them all properly, in your drawers.'

Hubert's aunt was very particular to have everything in her house done properly; as, in fact, every good house-keeper ought to be.

'Ah! here comes Maria now,' she continued.

Maria was a nice-looking coloured girl, very neatly dressed, and with a pleasing countenance.

She took no notice of Hubert as she came in, but stood awaiting the orders from Mrs Wood, for that was the name of Hubert's aunt.

Mrs Wood desired Maria to unpack the trunk and put the things in the drawers of the bureau. There were two large drawers below and two small ones under the glass above. Mrs Wood gave particular directions where everything was to be put—the shirts in this drawer, the stockings in that one, and at that end of it—the pocket-handkerchiefs here, the jackets and trowsers there, and so with everything else.

'And when you have done everything,' added Mrs Wood, 'let Robert know, and he will come and take the trunk up into the lumber-room.'

'And where shall I put my playthings?' asked Hubert.

'The playthings!' repeated Mrs Wood. 'I hope you have not brought a great many playthings. You know, my dear, that you will wish to keep your room in very nice order, and not have it all littered up with playthings. But perhaps Robert can find some place for them,' she added, 'in the coach-house; could not you, Robert? in one of the closets there, perhaps.'

Robert said that he could. There was a whole shelf there that he could set apart for them.

'That will be just the thing,' said Mrs Wood. 'So it is all arranged.'

Mrs Wood then went to one of the windows and looked out.

'Ah!' said she, 'I forgot about these windows. They lead out upon the roof of this piazza, which is very dangerous. These windows must be fastened down.'

'What, so that I can't open them at all?' asked Hubert, with a look of great concern.

'Why, my dear,' said his aunt, 'you will have air enough through the door, or at least—well, I know it would be a convenience to have a window open sometimes, but it is much better to forego that advantage than to run the risk of breaking your neck. If you were to be tempted to climb out upon that roof you might fall and kill yourself; or at least, break your arm or your leg.'

'But, aunt,' said Hubert, 'I promise you I never will get out.'

'Ah! my dear boy,' said Mrs Wood, patting him on the head at the same time, and with a pleasant smile upon her face, 'it does not do to trust to boys' promises too much, you know. You are a very good boy, I dare say, and as worthy to be trusted as most boys; but boys are boys, you know, and you might be tempted. If you were to fall off the roof and get killed or crippled for life, I never should forgive myself.'

So saying, Mrs Wood looked out upon the roof and shuddered.

'I don't see any other way of making it safe,' she said, turning to Robert, 'but to fasten down the windows.'

'You might have bars put up, perhaps,' suggested Robert.

'Yes,' replied Mrs Wood. 'Yes, that's just the thing. That removes all the difficulties. I wonder I did not think of that myself. Then Hubert and Maria can open the windows whenever they like. We will decide upon that plan. Get the carpenter to come this very day, and put up strong bars, near enough together, so that a boy cannot get through between them, and coming up as high as the windows will open.

'That will suit you exactly, Hubert dear,' she said, taking hold of his hand. 'You can open the windows whenever you please, and the bars won't prevent your looking out when the window is shut. You will like that plan very much, won't you?'

Hubert did not seem much inclined to answer. Somehow or other he did not like the plan, though he could hardly tell what the reason was.

The bars only prevented him from getting out upon the roof, and he thought he did not wish to get out. So there seemed to be no special reason why he should have any objection to the plan. And yet he felt uncomfortable and dissatisfied; though if he had been asked he could not have told why.

There was a table near one of the windows with a drawer in it. Mrs Wood opened the drawer and showed Hubert what was in it.

'See!' said she. 'I have put in everything you will want. There is a slate and a book of arithmetic, and some paper and a lead pencil.'

'And an inkstand and a pen?' asked Hubert.

'No,' replied his aunt, speaking in a hesitating tone. 'No, I did not put any ink here, for fear you might spill it. But you can write with a pencil just as well, you know, when you want to write. And here's a little shelf where you can put your Bible. You have got your Bible, I suppose, in your trunk.'

'Yes, aunt,' said Hubert.

'You must read a chapter in it every night before going to bed. Be sure and not forget it. I hope you will be a good boy and give your heart to God, so that your soul may be saved. That is more important than everything else in the world. And now I'll leave you until you get your things arranged. You can stay and help Maria about the unpacking. You must let Maria arrange things just as she thinks best. She knows just how I wish the business to be done. I hope you will be a good boy here, and if you are I am sure you will be happy. I am very indulgent to good little boys, and I shall do all I can to make you happy here in my house. You must remember that it will be a

good deal of care for me, and make me a good deal of extra trouble to have you in my family; but you must try to be a good boy, and make the care and trouble as little as possible.'

So saying, his aunt kissed him affectionately on his forehead, and went away.

There were several things in his aunt's reception of Hubert, and in her management in respect to the room, which troubled him a good deal; but perhaps the thing which vexed him most was her classing him among little boys.

'Good little boy!' he said, repeating his aunt's words in a tone of contempt. 'I'm no more a good little than she is herself. I'm ten years old last July, and going on eleven!'

Mrs Wood did not mean to be impolite to Hubert in speaking of him as a little boy, but it is nearly as impolite to apply the term little to a boy over eight years of age, as it is to give the epithet *old* to a lady over thirty-five. Mrs Wood was herself about thirty-eight, and what would she have thought if a young gentleman had come and taken his seat by her side, at an evening party, and had said I am coming to sit here, for I like to talk with nice old ladies like you; or if he had even said *elderly* ladies?

That afternoon the carpenter came, with six stout bars of hard wood under one arm, and the box containing the necessary tools for putting them

up, under the other. He placed the bars, three at each window, leaving spaces about eight inches wide between them, and between the uppermost and the sash above, and between the lowermost and the window-sill. Before he marked off the distances he took a look at Hubert, to see how near they must be together to prevent the possibility of his squeezing through, thus specially reminding Hubert that the bars were put there with particular reference to him.

The carpenter got out at one of the windows, and stood upon the roof of the piazza while he was screwing the bars on. He screwed them to the window-frames on the outside. Hubert watched the proceeding.

'You had better not put in too big screws,' said Hubert, 'for that will make the holes too large in the window when you come to take the bars down again.'

'That's true,' said the carpenter. 'Slender screws will do very well. There'll be no great strain come upon the bars, and I don't suppose Mrs Wood will keep them up very long.'

The bars, when they were screwed on, had the effect, of course, of barring the carpenter out, as well as barring Hubert in. This, however, made no difficulty, for the carpenter, as soon as the work was done, walked along the roof of the piazza to another window which opened from an entry, and

climbed in there; thus showing Hubert how he could get out upon the piazza if he chose, notwithstanding the closing up of his windows. Mrs Wood did not consider it necessary to bar up that window, too, for she did not suppose that Hubert would think of getting out that way.

CHAPTER II.

HOME MANUFACTURE.

A FEW days after Hubert came to live with his Aunt Cornelia, he went to make a visit to his Cousin Georgie. Georgie was at that time of just about his age.

After spending half-an-hour in rambling about the grounds and buildings where Georgie lived, Hubert asked Georgie if there was any place near there where they could go a fishing. Georgie said that there was a very good place, but that he had no fishing-lines.

'Have you got any fish-hooks?' asked Hubert.

'Yes,' said Georgie, 'I have got some fish-hooks in a box in my drawer; but my line is all worn out, and I had to throw it away. But we can go and buy some lines.'

'No,' said Hubert; 'we must *make* them.'

'I have got plenty of money to buy some,' said Georgie.

'That's nothing,' replied Hubert. 'Never buy anything that you can make. That is my rule.'

'That is not *my* rule,' said Georgie.

'What is your rule?' asked Hubert.

'It is just the contrary,' said Georgie. 'Never make anything that you can buy.'

'My rule is the best,' said Hubert. 'Because, you see, in that way you save your money for something that you can't make, and so have more things.'

'But what we make is not so good,' said Georgie.

'Perhaps it is not quite so nice and stylish,' said Hubert, 'but the pleasure of thinking that you made it more than makes up for the difference.'

'Where did you get *your* rule?' asked Georgie.

'Isaiah gave it to me,' said Hubert. 'Isaiah was a man who used to live with my mother while she was alive, and he gave me that rule. He helped me make a good many things, and showed me how to make a good many myself. I can make a very good fishing-line, if I can only get some carpet-thread.'

'I can get plenty of thread,' said Georgie. 'Juno will give me as much as I want.'

'Who is Juno?' asked Hubert.

'She is the girl who used to take care of me when I was a little boy,' said Georgie, 'and she helps me now whenever I want anything.'

So saying, Georgie ran into the house, and presently returned with a skein of carpet-thread in one hand and a piece of beeswax in the other.

'Ah!' said Hubert, 'that's just the thing. But what made you think of the beeswax?'

'Juno thought of it,' said Georgie. 'She said if we waxed the thread well before we doubled and twisted it, and then waxed the line when it was finished, it would be stronger, last longer, and would look smoother and handsomer.'

'How came she to know that?' asked Hubert.

'Oh, she knows about all such things,' said Georgie.

So the boys at once went to work to make two fishing-lines. They first wound the skein into a ball. Then Hubert made a loop in one end of it, and passed this loop over the catch that belonged to the latch at the door of the shed. He first, however, doubled a short length of the thread twice, so as to make four strands, and twisted them together between his thumb and finger in order to see whether four thicknesses would make the fishing-line of the right size; and being satisfied that it would, he then proceeded to unwind a portion of the thread, walking backward as he did so, from the place where the end was fastened, till he had reached a length about four times that necessary for the fishing-line. Georgie walked close after him with the beeswax, which he pressed along the thread as Hubert unwound it, rubbing it to and fro, so as to wax it completely.

Hubert next twisted this length, and then doubled it, Georgie taking hold of the middle and pulling it to one side while he advanced, until he could bring the two ends together. The double strand which was thus formed he doubled and twisted again, and thus obtained a nice, smooth, and fine line, which Georgie was satisfied, on examining it, would make a very good fishing-line indeed.

'It is not quite so handsome as one you might buy,' said Hubert, 'but it will catch the fishes just as well.'

'It is handsome *enough*,' said Georgie.

As soon as one line was made the boys began upon another, so as to have one for each of them.

After this Georgie went into the house and procured a cork, from which Hubert cut off two pieces, and strung them upon the two lines, one on each, for floats. In doing this he used a big darning-needle, which Georgie also brought out for the purpose. The boys found in a box of old iron, in a place which served as a kind of store-room in the shed, some sheet-lead, out of which Hubert fashioned sinkers, by cutting out strips and wrapping them round the lines at the proper distance from the end.

'Now,' said Hubert, 'go and get your fish-hooks.'

'Yes,' said Georgie; 'and I must carry in all these things that we have done with.'

So he gathered together the various objects which they had been using—the remainder of the thread, the wax, and the darning-needle, and took them into the house to give them back to Juno. On his return he brought with him his fish-hooks in the little box in which he kept them, and Hubert, after selecting two of the proper size, attached one on the end of each line, fastening them in a very neat and scientific manner.

'That's complete!' said Georgie, surveying the work after it was done. 'Now all we want is poles. What are we to do for poles?'

'And bait,' said Hubert. 'We must get our bait before we go, but we can cut our poles out of the bushes.'

The boys dug worms for bait, and put them into a tin box which Georgie kept for that purpose, and then Georgie went into the house to get permission to go a fishing. He first went to Juno. His custom was in all such cases to go in the first instance to Juno. If Juno thought it so clear that there was no objection to granting his request, that she was willing to take the responsibility, she gave him the permission at once. If, on the other hand, she thought there was any serious objection, she refused at once, so that Georgie's mother should not have the trouble of considering the question. If, however, she thought well, on the whole, of Georgie's plan, but did not feel quite willing to

take the full responsibility of acceding to it, she would send him to his mother for a final decision. Now, as Georgie's mother almost always concurred in Juno's opinion, Georgie generally considered the question as virtually settled, when he had obtained Juno's consent to refer it to his mother.

So Georgie went in when the fishing-lines were finished, showed them to Juno, and asked if he could go a fishing to try them.

'Where do you wish to go?' asked Juno.

'To the four-mile brook,' said Georgie.

'Anybody to go with you?' asked Juno.

'Yes, Hubert,' said Georgie.

'Is he a good large boy,' asked Juno; 'big enough to pull you out if you fall in?'

'Oh, yes,' said Georgie, 'he is as old as I am.'

'Then he'll do very well, I should think,' said Juno. 'And how long do you wish to be gone?'

'Oh—about two hours,' said Georgie.

'Well,' said Juno. 'It is now two. I will allow you two hours and a half. That will make it half-past four. I don't see any objection to your going. But go and ask your mother.'

So Georgie went in and stated the case to his mother.

'Have you asked Juno about it?' asked his mother.

'Yes, mother,' said Georgie, 'and she says she thinks there is no objection.'

'Then you may go,' said his mother.

Georgie then ran off to find Hubert, and they together started immediately on their excursion.

CHAPTER III.

TAKING A SET.

IT would be very surprising to see how easily and on what trifling occasions children get into quarrels, and that too about things which in their reasonable moments they care very little about, were it not that so many grown people so often act in the same senseless manner.

One would not suppose from the very good-natured and friendly manner in which the boys worked together in making their lines, that they could possibly get into a quarrel about a pole, to be cut in the bushes, especially when there were fifty other poles equally good growing all around. But they did.

The case was this. They reached the bank of the brook, after walking about half a mile, and then followed the brook for about a fourth of a mile farther, along a path which sometimes led through groves and copses of trees, and sometimes through grassy fields. They intended to go on until they came to a piece of low land, which in

the spring of the year was swampy and wet, but which in midsummer was dry, and where the trees and bushes were inclined to grow tall and slender. Georgie thought that they would be likely to find here, among the stems of the bushes, some that would be long, straight, and slim enough to serve for fishing poles.

On arriving at the spot they at once began to look about for poles, and Georgie's eyes soon fell upon one which he thought would do nicely. It was a long and slender stem with a length of eight or ten feet free from branches; and as it presented itself to Georgie's view, as he approached it on one side, it seemed quite straight. He called Hubert to come and see it. Hubert said he thought it would make a very good pole.

'It looks straight,' said he, 'from here, but we must look at it from another side.'

So saying, he forced his way through the bushes to get a view of it from another direction,—not entirely around to the farther side, but only half way round,—so as to look at it 'quartering' as the woodmen say. You can never tell how straight the stem of a tree is by looking at it from one direction only; for the crooks *lying in that direction*, if there are any, in the stem, would not be apparent. Thus if you look at a tree from the south side, and it bends a little toward the south or toward the north—that is, in the same direction that you are

looking at it—its crooks will not be easily seen. Standing to the south of it, you can only distinctly see the bendings that turn toward the *east* or *west*. To see the bendings toward the north or south, you must go round to the east or west side.

When Hubert got into the new position, he found that there was a great bend in the stem.

'There's a great bend in it,' said he, 'but there are no short crooks; so I think we can straighten it after we get it cut down.'

Georgie looked at it and then said that he would rather have one that was straight already. And so he began to look about and examine other stems.

In the mean time Hubert remained by the one which Georgie had first found, and seemed to be carefully examining it. He observed that there were no short crooks in it, but only one general bend, and this, he thought, could be easily straightened. If there are *short* crooks in a pole, or cane, that you are cutting in the woods, they cannot be taken out; but a *general bending* of it, in one direction, can be easily remedied. Sometimes you can straighten it at once, as soon as it is cut down. A surer way, however, is to heat it before a fire, keeping it there until it has had time to become heated through. Then when you straighten it it will remain straight. The reason is, that if wood is hot, it 'takes a set,' when it is bent—at least

it is much more inclined to do this than when it is cold.

A girl once had a pretty little garden hoe, with a long and slender handle, which had been nicely smoothed, and was made of very pretty wood, but it had unfortunately become warped in seasoning, as wood sometimes will, and was bent a little. This not only *injured the appearance of it*, but made it somewhat inconvenient to be used.

Her brother, when he discovered this, took the hoe to the kitchen fire, and let it lie there before the fire, until the wood had become heated through —as hot as he could make it without danger of scorching the wood. Then by placing it across his knee, he found he could straighten it very easily; for now when the fibres of the wood were brought into a new position by the force which he applied, they, for some reason or other connected with their being heated, accommodated themselves to the new arrangement, and remained fixed in it. Or in other words, and as mechanics usually express it, they 'took a set.'

Wood can be bent, and will take a set in this way, when it is seasoned and dry, but it will do this more readily when it is green,—that is, when the pores are full of moisture. The moisture, it seems, has the effect of softening the woody fibre, and making it more flexible, and more manageable every way. Sometimes when wood is already sea-

soned, so that it bends with difficulty, the workman fills the pores with water again, by immersing the wood for some time in hot water, or by steaming it, which is a still better method.

If a piece of wood requires to be bent *much*, it is necessary to soften the wood by water, or else it cannot be done. You can only bend dry wood a little by heating it before the fire. If a boy wishes to make much of a curve in his wood—as for example if he should undertake to make a frame sled, and should wish to bend up the forward ends of the runners, the way would be to get out the pieces for the runners, straight, and then dip the forward ends as far as the bend was to come, in boiling water—as for instance, in the boiler over a stove or range on washing day, or in a pretty deep kettle over a fire made for the purpose out of doors, and let them remain so until the wood had become thoroughly impregnated with the hot water. He would find, then, that if the wood was not *too* thick, it would become quite flexible, and the ends could be bent with comparative ease. Only in this case they must be secured in the bent position until they have dried, when it would be found that they had taken a set, and that, too, of a very permanent character.

A boy in the country once made a pair of runners in this way, and by means of them he fabricated a very good sled. The plan which he adopted

to bend the ends of the runners, and to secure them in position while they were drying, was this. He bored two auger-holes side by side in a piece of plank, and then inserting the softened ends of the runners into these holes, he bent the part outside of the holes down near the plank, and tied them there. He then leaned the plank, with the runners thus lashed to it, up against the barn, in a sunny corner, to dry, and after some days, when he took the bars out, he found the curves which he had made had taken a set in a very satisfactory manner; and by means of them he afterward made an excellent sled.

CHAPTER IV.

A QUARREL.

HUBERT found, on examination, that the pole which Georgie had discovered, with the exception of the gentle bend in it, was an excellent one for a fishing-pole, and as Georgie had gone away and left it, he determined to take it himself.

'You don't find one such pole in a thousand,' he said to himself, 'as this will make when it is straightened and seasoned and planed. It will be straight enough for me to plane, I believe, or at least to smooth with a spoke-shave.'

A spoke-shave is a very curious, and yet a very simple tool, and not dear. It is excellent for shaping and smoothing canes, poles, bows, arrows, and all such things. It is called a spoke-shave, because it is chiefly designed to be used by wheelwrights and wagon-makers in shaping and smoothing the spokes of wheels.

Hubert had a spoke-shave in his trunk. He had brought it with him to his aunt's, knowing

that it would be very convenient for him in many of his operations.

But to return to the story. Hubert, after coming to the conclusion that the pole which he was looking at would make an excellent one to be taken home and finished up for future use, took his knife out of his pocket and began to cut it off near the ground. He understood that Georgie had abandoned it. But while he was at work cutting it, Georgie came back to the place and looked on. When he saw that Hubert seemed inclined to value the pole, he began to think more favourably of it himself. It very often happens that children do not want a thing till they find that somebody else wants it, and then they want it very much.

'Are you going to take that pole?' asked Georgie.

'Yes,' replied Hubert.

'But it is too crooked,' said Georgie.

'It is only bent,' said Hubert, 'and I can straighten it very easily.'

'And then, besides, it is my pole,' said Georgie. 'I found it.'

'No,' replied Hubert, 'it is not yours. You went off and left it.'

'No,' replied Georgie, 'I only went to see if I could find a better one, and I can't find a better one; so I want this.'

By this time Hubert had cut the pole off at the bottom, and was now beginning to cut off the little cluster of branches that formed the top. He did not seem inclined to make much reply to Georgie's claim, and Georgie began to feel a little disturbed in mind at Hubert's taking no notice of him.

'I say it's my pole,' said Georgie, 'because I found it.'

'And I say it is mine,' said Hubert, 'because I cut it down.'

'But you had no right to cut it down,' said Georgie, 'when it was mine; for I found it.'

'You looked at it,' replied Hubert, 'and that was all. Do you suppose that a boy has a right to all the poles and trees in the woods that he happens to look at.'

Next to taking away from a boy what he considers as his property, nothing is more apt to vex and irritate him than to make his arguments appear ridiculous, and Georgie began to be quite out of humour. So just as Hubert had finished cutting off the top of the pole he took hold of the lower end of it, saying,

'It is my pole, and I mean to have it.'

'No, it is not your pole,' replied Hubert, 'and you are not going to have it.'

So while Georgie had hold of the lower end of the pole, Hubert retained the other in his grasp, and they began to pull against each other. They

soon became quite excited, and in the struggle for the possession of the pole, they finally brought it across the stem of a tree which was near them, and one pulling upon one side and the other upon the other, the pole cracked in the middle, and was spoiled.

They then dropped the pole, and stood looking at each other a moment with an expression of anger and defiance in their countenances, when suddenly Georgie said,

'I won't stay and play with such a fellow,' and turned round to walk away.

'Nor I either,' said Hubert, and he began to walk off in the contrary direction.

Now, I do not know whether the boys and girls who may read this book are old enough to understand much about philosophy, but there is something about the philosophy of quarrelling which is very curious, and which it is very useful for everybody to understand.

It is this, namely: that in almost all the cases when people quarrel, the thing that they quarrel about involves a question which has two sides to it, and each one of the quarrellers sees only his own side. Of course, if he only sees his own side, and not all that of the other party, it is very natural that he should think, and honestly think, too, that the other party is wholly in the wrong.

In this case, for instance, each boy, as he looked only on his side of the question, honestly

thought that he was right, and that the other was wholly in the wrong. Hubert examined the pole when Georgie, after looking at it, had passed on. Georgie had done nothing at all to it, except to look at it, and find that it was bent. Hubert had cut it down and trimmed off the top, and it seemed to him that it was clearly and rightfully his; and all because he only looked at his side of the question, without paying any attention to Georgie's side.

Georgie, on the other hand, looked only at his side, without paying any attention to Hubert's. To him it seemed to be a case where one boy found a pole, and called another boy to see it, but did not fully decide to take it until he had looked a little farther; and while he remained undecided, the other boy came and took the pole which he had found, without his leave. It was, in his view, a very decided case of wrong. The pole, it honestly seemed to him, was clearly and rightfully his.

If each of the other boys had stopped to look at the other boy's side of the question as well as his own, he would have seen it was a doubtful case, and it would have been comparatively easy for them to come to some amicable understanding about it.

A very large portion of the quarrels which arise in the world come in this way—that is, from people looking at only their own side of the ques-

tion. I advise you all, therefore—all who read this book—when you become men and women, to make this your rule, namely: that whenever any misunderstanding begins to arise between yourself and any person, before letting it grow into a quarrel, stop and take time to look carefully at the case as seen from *his* side of it. That is, put yourself as much as possible in his case, and imagine that you were his lawyer, and were trying to prove his claim, and see how much, in that case, you would have to say in his favour. You may after all find that you are in the right, or at least that your claim is stronger than his; but you will be much more gentle and forbearing in insisting on your rights, after fairly considering his, and the contention which might otherwise have become a terrible quarrel, will perhaps be settled in a very amiable manner.

Nor is it best to postpone putting this rule into practice until you are men and women. Any boy who is old enough and sensible enough to understand the principle, and who has self-command enough to put it into practice, will find that he will live much more peaceably and happy with his companions, and pass his time much more pleasantly in all respects, by governing himself by it while he is a boy.

CHAPTER V.

PEACE.

WE left the two boys, Georgie and Hubert, walking off in opposite directions from the place where they had been playing, each in high dudgeon. At first they both walked very fast, as if they were determined to get away from each other as quick and as far as possible. They were each intending —so far as they had formed any distinct intention in their minds—to go home. They scrambled through the bushes for a little way with great energy, but the obstacles which they encountered impeded their progress somewhat, and possibly the violent exertion which they made had the effect of working off some portion of the violence of their anger—or, as the physiologists would say—a part of the vital force which was expending itself in cerebral excitement was diverted, and was employed in supplying the muscular force necessary for getting through the thickets. I don't know how this may be; but at any rate the boys both found, as they advanced, that they became somewhat less eager,

and they gradually slackened their pace. The thought came suddenly into Georgie's mind that he was going to lose all the fishing with the nice new fishing-lines which he and Hubert had taken so much pains to make.

'I don't care,' he said to himself. 'I'd rather lose all the fishing in the world, than stay with such a fellow as that.'

But though he said he did not care, he *did* care; and he soon began to think that it was a great pity not to be able even to try the new lines.

These thoughts made him begin to feel something like hesitation; and by the time he had got to the margin of the bushes, and came out into the open field, he began to walk very slowly, as if somewhat uncertain what to do.

As for Hubert, his mind passed through a similar series of changes. When he first set out he said to himself,

'I never saw such a fellow in my life! To make such a fuss about an old pole not worth two cents! And when he had no right to it at all; only because he had just looked at it. He might have had the pole just as well as not. I did not care about the old thing!'

This was very absurd and inconsistent in Hubert; for if he did not care about the old thing, why did he refuse so strenuously to let Georgie have it? But when people allow themselves to get

angry, they are very likely to say and do what is inconsistent and absurd.

Hubert did not distinctly perceive that what he had said was absurd, but he had a kind of half-consciousness of something wrong; so that by the time he reached the margin of the thicket, at a little distance from the place where Georgie came out, his impetuosity, as well as that of Georgie, had considerably abated. They, however, both continued to walk on in divergent directions, though they walked more and more slowly. Indeed, if what a certain ancient writer says about anger, namely, that it is a *short insanity*, is true, it seemed as if these boys were gradually coming to their senses.

Presently Georgie could not resist the temptation of looking over his shoulder to see how far Hubert had got; and he did this just at the instant that Hubert was looking over his shoulder to see how far Georgie had got. So each caught the other looking back, and both involuntarily laughed; but they both also instantly made an effort to repress the laughing, as something quite out of place under the circumstances, and tried to look sober and angry again.

So they sauntered along very slowly, and very soon both began to wish that the other would do or say something that would open the way for 'making up,' though neither was prepared to take the step

himself. Each thought that he was waiting for the other to do an unpleasant thing, which, however, they both wished to have done. This was a great mistake. Instead of waiting to see which of them would take upon himself the doing of a disagreeable thing, it was really to determine which of them should have the honour of doing a noble thing; that is, of making the first acknowledgment of being in the wrong, and the first advances toward a reconciliation after a quarrel.

Pretty soon Georgie saw a large log lying upon the ground, with bushes and weeds growing up around one end of it. He stopped to look at the place. He *thought* he stopped to see whether there was not a hornets' nest under the log, as it was very much such a place as wasps and hornets ordinarily choose for their nests, but he was really stopping to protract the time and give Hubert a chance to speak. Hubert, seeing Georgie stop to examine the log, sat down on a large flat stone which lay nearly in his way. Georgie, observing by a furtive glance that Hubert had stopped and taken a seat, sat down himself on the log, and though he kept a sly watch all the time upon Hubert's motions, he took great care not to seem to be looking at him, and made great efforts to keep a very stern and severe expression of countenance.

Both the boys remained in this position a few minutes without saying a word. At length Hubert

suddenly rose, and advanced one or two steps toward Georgie, saying,

'Georgie, I think you and I are a couple of fools.'

Georgie looked up somewhat astonished, but did not say anything, because, in fact, he did not know what to say.

'At any rate,' said Hubert, 'I think at least that I'm one fool.'

'And I believe I am the other,' said Georgie.

Georgie rose at the same time and advanced toward Hubert.

'To get a quarrelling,' said Hubert, 'about a miserable old stick, and that, too, when just such ones are growing all about us as thick as bean-poles in a garden.'

'I am sorry I did not let you have it,' said Georgie, 'when you had taken so much pains to cut it down.'

'And I am sorry I did not let *you* have it,' said Hubert, 'when you were the one that found it, and did not say that you gave it up. If it was not broken you might have it now.'

It was evident now that both the boys had so far recovered their senses, after their 'short insanity,' that they could see some other side of a question besides their own.

The boys then went back into the woods again, and began to look out for poles. Hubert proposed

that they should each choose two—a small and slender one, not very long, for fishing with that afternoon in the brook, and that then, after they had done fishing, that they should choose two longer and larger ones to be taken home and finished after they should be seasoned, and kept to use when they wished to go a fishing in the river, or in a mill-pond, or wide stream, where they would require to reach out farther from the shore.

'You see,' said Hubert, 'you can't use a long pole very well, when you first cut it in the woods; for if it is long, it must be large in proportion, and then it is very heavy. It is *very* heavy when you first cut it in the woods.'

'What makes it so heavy then?' asked Georgie.

'On account of the sap that is in it,' said Hubert; 'but when you take it home and hang it up somewhere in the shed, and let it stay there all summer, all the sap that is in it dries out, and then it becomes a great deal lighter.

'Besides,' continued Hubert, 'we take the bark off, and smooth the bunches and little knots all off, and if we choose we can make it slender all along, and so make it as light as we please.

'You could not do that with a knife,' he continued, 'because the blade of the knife runs in and out, following the grain, and you can't make it true; but you can do it very nicely with a spoke-shave.'

'What kind of a tool is a spoke-shave?' asked Georgie.

'Didn't you ever see a spoke-shave?' asked Hubert. 'It is a small tool like a short stick, with two ends rounded for handles. In the middle there is a little blade set, which is very sharp, and the edge of it comes out from the wood just far enough for the thickness of one shaving. You can set the blade just as you want it, so as to cut thick shavings or thin.'

'I should set it to cut thick shavings,' said Georgie, 'so as to get along faster.'

'That depends upon what kind of wood you have,' said Hubert; 'whether it is soft and straight-grained, or hard, and gnarled, and knotty.'

'I would not take any wood that was hard, and gnarled, and knotty,' said Georgie.

'Then you would not take any of the prettiest wood,' replied Hubert. 'If you are making a cane, the hard and knotty wood makes the best and prettiest cane, when it is finished and varnished; though it takes longer to make it, because you have to make thinner shavings.'

'How did you find out all about these things?' asked Georgie.

'Isaiah told me,' replied Hubert.

By this time the boys had their poles ready. They fished about three-fourths of an hour, and had very good success. The poles which they had cut,

small and slender as they were, answered the purpose very well. When Georgie thought it was time to go home, the boys strung their fishes upon twigs, in the usual way, and then, laying them down together in the shade, they looked about for two poles of larger size, to be taken home with them, with a view of seasoning them, and then finishing them at their leisure by means of Hubert's spoke-shave.

Sometimes at the end of a story there is a moral. If any one were to attempt to draw a moral from this chapter, it would be this, that a fishing-pole growing in the woods, and the subject of a quarrel, whether among boys or men, are alike in this respect, namely: that to be able to judge correctly of them, we must look at them from more than one side.

I am not sure, however, whether, strictly speaking, this is most nearly of the nature of a moral or of a conundrum.

CHAPTER VI.

A LAND GRANT.

HUBERT, though he was quite an intelligent boy, and knew a great deal about many common things, was not by any means a good scholar at school. He was very much behind-hand in all his studies. He did not like study at all, nor books, nor teachers, nor anything that pertained to school in any way. He was very active in his plays, and in his various contrivances for amusing himself out of doors, or in a little place that he called his shop at his mother's, while his mother was living; but if he could have had his own way, he would never have gone into a school-room at all.

It was in the spring of the year that he came to live with his aunt, and Robert was beginning to make the garden. He went out one morning to see him. His aunt was there, with a large sun-bonnet on her head, giving directions.

'Hubert,' said she, when she saw Hubert coming, 'I think you had better not come into the garden

much while Robert is making it. I am afraid that you will interrupt Robert at his work.'

'Oh, no, auntie!' said Hubert. 'I won't interrupt him. I'll help him rather.'

'Ah! I'm afraid not,' said his aunt. 'There is nothing so troublesome when you are at work in the garden, as a child about. They are always meddling with the tools and running over the beds.'

'Why, aunt!' said Hubert. 'Don't you suppose that I have got sense enough yet not to run over the beds?'

Hubert had become by this time somewhat better acquainted with his aunt than on the first day of his coming, and was less afraid in speaking to her.

'Well,' said she, hesitatingly, and after a moment's pause, 'you may stay a little while this morning, but if he gives you any trouble, Robert, or interrupts you at your work, send him right out.'

So saying, Mrs Wood turned to go into the house, and Hubert was so much vexed at what she said, that he felt impelled to relieve his feeling by making up a face at her, behind her back, as she went out. I don't wonder at his being a little vexed at finding her so continually inclined to take it for granted that he was a troublesome and bad boy; but he ought not to have made a face at her.

Hubert immediately went to work helping Robert all he could. He raked up the weeds which Robert threw out of the beds in spading them up, and then put them into a wheelbarrow and wheeled them away.

He brought Robert the tools which he wanted from time to time, and so saved him a good many steps. He, moreover, went of various errands for him, whenever and wherever Robert had occasion to send him.

After this Mrs Wood, finding, through the account which Robert gave her, that Hubert, when in the garden, was a help and not a hindrance to him in his work, allowed him to go into the garden when he pleased. In about a week the garden was all laid out. The flower-beds were made, and some of them were sown, and the quarters intended for corn, potatoes, and other garden vegetables, were arranged. Two rows of peas had been planted a week or two before, and were just beginning to show their heads above the ground.

The sight of these peas coming up awakened in Hubert a strong desire to set something a growing himself.

'I wish aunt would let *me* have a garden,' he said. 'I mean to ask her the next time she comes out.'

So he did, but his aunt shook her head, saying,

'Oh, no, Hubert, my dear. I don't think that

would be worth while. You see you would soon get tired of it, and it would all grow up to weeds.'

Hubert looked disappointed.

'You see, Hubert dear,' said his aunt, when she saw how disappointed he looked, 'you won't care about it long, if you have a garden. Besides, you can see the flowers in my beds, just as well as if they were in your own, and I shall give you some of them sometimes, when you are a good boy. Then, as for weeding them and taking care of them, you can have plenty of that work to do on my beds, whenever you wish, and that will be all the same thing.'

Hubert thought it would not be the same thing at all, but he did not know exactly how to express the reason in words, and so he remained silent.

'At any rate,' continued Mrs Wood, 'I could not let you have a bed in my garden, for we have to keep my garden specially nice. Robert is very particular about having everything in order in my beds.'

'But, perhaps,' she added, after a moment's pause, and then, after hesitating a moment, she turned to Robert, and said,

'You will reserve a piece of ground for your second planting of peas, I suppose, Robert.'

'Yes, Mrs Wood,' said Robert. 'I usually reserve two or three pieces of ground. We generally plant peas at least three times.'

'Very well,' said Mrs Wood. 'Then we can arrange it quite nicely. You can let Hubert have one of those reserved beds. And so, Hubert, you can have a good place for your garden as long as you will want it. You will get tired of it, you know, before the time comes for planting the peas, which won't be till three or four weeks from this, perhaps. That will be just what you would like, won't it, my dear?'

'But suppose I don't get tired of it,' said Hubert, 'and want to keep it.'

'There's no danger of that,' said Mrs Wood. 'You will be tired of taking care of it and pulling up the weeds, long before that time. The little rogues grow very fast, and they come up by the million.'

'But, auntie,' said Hubert, 'I have had a garden before, and kept it in good order all summer, and gathered seeds from it in the fall.'

'I don't know,' said Mrs Wood, shaking her head. 'I have some doubts about the order that you kept it in. It might have been what *you* would call in good order. However, I won't say positively that you must give up your garden in three weeks. If I find you do really keep it nicely, I may be tempted to let you keep it longer.'

'All summer?' asked Hubert.

'Well, I don't know about all summer,' replied Mrs Wood. 'But we will see.'

'Robert,' she said, turning toward Robert, who was at work near, 'suppose Hubert should give up his garden in the middle of the summer, is there any seed that can be put in as late as that, that would come to anything?'

'I suppose we could raise some turnips upon it,' said Robert.

'Very well, then,' said Mrs Wood, 'you shall have your garden as long as you keep it in perfect order.

'You see, I am willing to indulge you in anything reasonable,' Mrs Wood added; 'and to show you that I wish to do all I can to make you happy, I will come out day after to-morrow and help you arrange your garden, and give you my advice about the kinds of seeds you had better sow in it. I shall be engaged to-day and to-morrow, but it will take you all that time to get your ground ready. You must dig it deep and rake it fine, and line it out perfectly straight and square at the sides and corners.'

So saying, Mrs Wood went away, leaving Robert to select a piece of ground.

As soon as his aunt had gone, Hubert sat down upon a seat by the side of the broad alley of the garden, to reflect upon what had been said and done.

'I've a great mind not to have any garden at all,' he said to himself in his vexation.

But Robert interrupted his reverie by proposing to go with him and select a place. Hubert rose slowly, and somewhat reluctantly, and followed him. He thought that there would at least be no harm in seeing the place. Now, Robert was very much disposed to keep Hubert all he could, as, indeed, he ought to have been, considering how much Hubert had helped him.

He accordingly took Hubert along the walks, and showed him several plots which he could have. Hubert began to be somewhat interested in the selection. Finally a place was found, somewhat retired, which Hubert said he liked the best. It extended along the side of a broad walk for about twenty feet, and was bounded at the two ends by two narrow walks, running at right angles to the broad one.

'There,' said Robert, 'you can have a piece of ground here. It is about twenty feet long.'

'And how wide can I have it?' asked Hubert.

'Any width you please,' said Robert. 'You can go back as far as you like. Only don't take more land than you think you can take good care of. They say that farmers often miss it by having too much land; more than they can take good care of.'

Hubert placed his right foot at the margin of the alley, and then took three long steps across his land.

'There!' said he, turning on his heel upon the ground, at the spot where the three paces ended, to make a mark, 'I would like to have my land come as far as this.'

'Very well,' said Robert; 'go and get a stake, and drive it down at your mark. Then go and get the measuring-pole, and measure the same distance at the two ends by the narrow walks, and stretch the line along, and so lay out a narrow path along the back side of your lot. That will mark it out, and then you can go to work upon it as soon as you please.'

CHAPTER VII.

HINDERING INSTEAD OF HELPING.

HUBERT determined to hurry forward his work so as, if possible, to have his garden all made and planted before his aunt should come to help him with her advice. He was very distrustful in respect to the aid which he should receive from such counsel and advice as he thought she would give him.

So he worked diligently all the time that he had, that day and the next. He called upon Robert several times for advice, and Robert gave him advice in the right way; that is, he aided him in finding the best means of doing what Hubert himself wished to do; whereas, I am very much afraid that if his aunt had been there, her idea would not have been to aid him in doing what he himself wished to do, but to interfere, as he would have called it, with his plans, and urged him to adopt others of her own.

He, therefore, went on briskly, and planned and planted his garden according to his own ideas.

On the morning of the day which his aunt had

appointed for helping him, she told him at breakfast that she would come out about nine o'clock and help him in arranging his garden. He told her at once that it was all done. She expressed her surprise at this, and asked him, in a somewhat disappointed tone, why he had not waited for her to advise him about it.

'However,' said she, 'it is no great matter. I see what we can do.'

Her idea was that after all, Hubert's having planted his garden would do no great harm.

'The ground, in the spring,' said she to herself, 'is full of all sorts of seeds, both of weeds and also of the flowers which grew the year before, and those which Hubert has planted will not make much addition.

'We can simply pay no attention to what he has sown,' she continued, in her thoughts, 'but plant the ground over again, just as if nothing had been done to it, and so let the seeds which he has put in come up if they have a mind to, with the weeds, and be pulled out in the weeding.'

Accordingly, at nine o'clock, Mrs Wood went out into the garden and approached Hubert with a very smiling face.

'Well, my dear,' she said, 'where is the bed which Robert has given you. I'll show you now exactly what to do.'

Hubert led the way to the bed. It was in the

back part of the garden, on the margin of a quarter which was to be appropriated to corn. Across the alley was another plot, which Robert had said was to be devoted to early potatoes.

Mrs Wood looked a little dissatisfied when she saw the spot.

'Is this the place?' she said. 'I am rather sorry that Robert chose this place; it is a little too public for your garden. I was in hopes that he would find a place more out of the way.'

'But, aunt,' said Hubert, 'this place is as far out of the way as it can be, and yet be in the garden. It is going to be all corn and potatoes about here.'

'Well,' said Mrs Wood, speaking, however, still in a doubtful and hesitating manner. 'Well! never mind! Since he has given it to you, and especially as I see you have dug it all up, I suppose you had better keep it. And now about the kinds of seeds that you had better sow in it.'

'But, aunt, it is all sowed already,' said Hubert. 'I put in all seeds yesterday. I had the seeds in my trunk. I brought them with me. There is not room for any more at all.'

'What is that great circle in the middle of the bed?' asked Mrs Wood.

Mrs Wood observed marks of a large circle having been made in the middle of the bed, so large as take up the whole width of it, which was about

eight feet. The circumference of this circle was defined by a low, flattened ridge, which extended all around it. Hubert had marked the outline quite exactly by means of a stake, in the centre, and a piece of twine nearly three feet long for radius.

'What is that circle for?' asked Mrs Wood. 'What have you planted there?'

'Beans,' said Hubert.

'Beans!' repeated his aunt. 'But it seems to me, Hubert, my dear, I would not have beans in my garden, if I were you. You can get a great deal prettier flowers than beans.'

'I don't want them for the flowers,' said Hubert, 'I want them for the shade.'

'For the shade!' repeated Mrs Wood, quite surprised.

'Yes, aunt,' said Hubert. 'That's where I am going to have my wigwam.'

'Your wigwam!' repeated Mrs Wood, more and more surprised.

Hubert then went on to explain that he was going to have a wigwam in his garden, like one that he had in his garden at home, which Isaiah showed him how to make. He first planted beans—those of the climbing kind—in a great circle. Then when they came up he cut poles out of the woods, leaving the tops, long and slender, upon them. He stuck the poles into the ground around the circle,

and tied the tops together over head. Then in the middle of the summer, when the beans had grown up high, he had a nice wigwam, where he could go in and sit in the shade. He set the two poles that came in front, he said, farther apart than the others, so as to make room for a door.

Mrs Wood did not seem so much pleased and interested with this idea of a wigwam, as Hubert might have expected. On the contrary, she looked very serious, and said at length, shaking her head slowly and thoughtfully,

'But it seems to me, Hubert, that I should not want a wigwam in my garden, if I were you, nor beans. It would be a great deal better to have pretty flowers. If I were you I would rake that big circle all over, and make some pretty little beds in the place of it.'

Hubert looked as if he felt very little inclined to accept this advice, and so his aunt did not press it upon him.

'I think you will be sorry,' said she; 'but, however, you shall have it as you like. But I think that when your seeds come up, you will wish you had taken my advice, and put into your garden something prettier than those great coarse beans.'

So Mrs Wood went away dissatisfied herself, and leaving Hubert even more dissatisfied and unhappy still.

Mrs Wood was the more willing to consent at

last, though reluctantly, to Hubert's planting his garden in his own way, on account of her being so confident that he would get tired of it in a short time, and would not take good care of it, and that it would then be easy for her to persuade him to give it up, and let Robert put turnips in the ground.

It so happened that a few days after this Mrs Wood went out of town, and was gone about three weeks. In the mean time Hubert's seeds came up, and as soon as they were so far out of the ground that he could distinguish the flowers from the weeds, he attended carefully to the weeding of the bed, and put it in what seemed to him excellent order. He went over it carefully again the day before his aunt was to return, so that she might see that it was safe to trust him with a piece of ground. He wheeled away all the weeds from the paths, and then straightened the edges of his bed as carefully as possible. Of course he could not get the sides perfectly straight, nor make the corners perfectly square; nor could he get out every one of the weeds. Some little rogues will hide away where you cannot find them; and even if you could find and eradicate every single weed that has shown its head above ground, and leave your garden perfectly free at night, some would come up while you were asleep, so that your beds would not be perfectly free in morning.

When Mrs Wood went out into her garden on

the day after her return, Hubert was quite eager to take her to see his bed. His aunt showed no interest in going, being occupied in examining her own beds, and in giving fresh directions to Robert. She put Hubert off several times, but at last she said, 'Well, I suppose I must go and see your bed, and I may as well go now, perhaps, as at any time.'

When she came to the bed, she surveyed it a few minutes in silence, and then said, speaking hesitatingly and doubtfully,

'Well, well, Hubert! on the whole, you have done pretty well; better, in fact, than I expected. Your beans have come up nicely—but don't you wish that you had taken my advice, and planted something prettier there?

'And, Hubert, it would be a good plan,' she continued, 'to make the edges of your bed straight, and the corners square. You have got it in *pretty* good shape now, but I am very particular about everything in my garden. I must have everything *perfect*. And how about the weeds? Let me see if you have got out all the weeds.'

So saying, she began to look very closely along the rows of plants that were coming up, pushing them aside with her hands, to see if there were any hidden weeds to be found.

'You've done pretty well on the whole,' she said. 'But you have not found all the weeds. See! there's one, and there's another, and there's

another! There are quite a number. They are small, it is true, but they'll soon grow bigger if you don't keep them out. You can't be too particular in doing your weeding thoroughly. You know the ground was to be forfeited if you did not keep it clear of weeds.'

Hubert was beginning to feel very much disturbed in mind and discouraged. He said nothing, but turned his face a little to one side, as if to conceal his emotion. His aunt perceived that he was troubled and said,

'But you need not be disheartened about it. I don't know but that you have done as well as I could have expected. We ought not to expect that little boys should be able to keep a garden very nicely. It is very particular work, you know. I told you that you would not persevere and keep the weeds out, and I ought not to expect you should. Besides, you really have done it pretty well, considering.'

These words, instead of comforting Hubert, only seemed to trouble him more and more, and Mrs Wood perceiving it, thought she would not press the subject any farther, but turned to go away, saying to herself, 'His feelings seem to be hurt, though I don't know why. I am sure I have not said anything to trouble him. On the contrary, I have said everything to excuse him. Perhaps I said *too* much. It won't do for me to be

so indulgent as to lower his standard and make him careless.'

Mrs Wood made a great point of keeping up the standard of excellence for children very high, which is an excellent thing, provided it is done in the right way.

As soon as she had gone, Hubert walked slowly away in the contrary direction. He sauntered along a path which led to the end of the garden, where there was a stile, leading over into a field beyond. He went over the stile, and sat down upon the lower step, on the side toward the field, where he was, in a great measure, out of sight. He remained here for several minutes, doing nothing except that he pulled off, in apparent abstraction, some heads of grass and clover that grew by his side, and threw them out into the path before him.

Presently he rose, returned over the stile, and began to walk back along the path toward the house, with the air of one who, after a period of doubt and uncertainty, had come to a conclusion. He went directly to the place where the garden tools were kept, and took a spade. He then returned to his ground and began spading it up, commencing at one end, and taking in the path which he had made along the back side of it, and turning everything under. He persevered diligently at this work for an hour, and at the end of that time all

traces of his garden were obliterated, except that the portion of the ground which it had occupied had the appearance of having been spaded over.

When this was done, he went and put away the spade, and then he called out to Robert, who was working at a little distance from him, saying,

'Robert, isn't it almost time for you to put in your second planting of peas?'

'Yes,' said Robert, 'I'm going to do it to-morrow.'

'Well, you can put them in my bed.

'In your bed?' exclaimed Robert, surprised.

'Yes,' replied Hubert. 'I've spaded it up all ready for you. I'm not going to have any garden.'

'Master Hubert,' exclaimed Robert, 'I did not know that you were so changeable.'

'You won't have any work to do to prepare ground,' continued Hubert, 'but you will have some extra trouble about the weeding. There were a good many of my flowers that had not come up, and if they come up now, after your peas are planted, they'll only be weeds.'

CHAPTER VIII.

THE TWO LOCOMOTIVES.

ONE evening Georgie was talking with his father, and the conversation turned on Hubert. Georgie said he liked Hubert very much indeed.

'And he knows more,' said Georgie, eagerly, 'than any boy I ever saw.'

'Ah!' said his father.

'Yes, sir,' said Georgie. 'He learned so many things that Isaiah taught him. But then he's a very poor scholar.'

'That's strange,' said his father; 'that he should know more than other boys, and yet be a poor scholar. What makes you think that he is a poor scholar?'

'He says so himself,' replied Georgie; 'especially in arithmetic. He says he hates arithmetic. He can't understand it at all.'

'Perhaps there is some defect in his brain,' said his father; 'or perhaps he is only off the track.'

Juno was sitting at the window sewing during this conversation, and she listened to it attentively.

'What do you mean by his being off the track?' asked Georgie.

'I'll tell you a story about it,' said his father.

The truth was that Georgie's father perceived that Juno was listening to what he was saying, and he conceived the idea of telling the story quite as much with reference to her benefit as for Georgie's.

'Once there was an engineer,' said he, commencing the story, 'who had the charge of a number of locomotives, and among them there were two that would not go well. The man sent for the engineer to come and see what was the matter. The locomotives would go a little way, they said, with a great deal of hitching and jolting, and then they would stop altogether.

'So the engineer went to see them. He examined the first very carefully, turned the different handles, set the different parts in motion, and noticed how they worked, and finally found that the difficulty was in the cylinder. So he had the head of the cylinder unscrewed, and there he found that the machinist, in putting the engine together, had forgotten to pack the piston.'

'What is that?' asked Georgie.

'Why the piston is a round thing,' said his father, 'that moves to and fro in the cylinder, as

the steam drives it one way and the other. It is meant to fit the inside of the cylinder exactly, so that the steam cannot leak by it. The thing inside a squirt-gun by which you force out the water, is a piston. It might, perhaps, be called a kind of movable stopper.'

'I know now,' said Georgie. 'We always wind tow around it in the squirt-gun, to prevent it from leaking.'

'Yes,' said his father, 'and that tow is the packing. Now the machinist had forgotten to put the packing around his piston, and so the steam escaped by the sides of it, and the engine could not work with any power.

'When the engineer found what the difficulty was, he said,

'"This engine can never do any work in this condition. It must go back to the machine-shop and have the piston packed."

'Then he went to the other locomotive and began to examine that. He looked at all the joints, tried the valves and the supply-pipes, watched the working of the piston-rod, and everything seemed right. At last he crept under the engine, and began to examine the state of things there, and very soon he suddenly exclaimed,

'"There is nothing the matter with this engine. The only trouble is she is off the track.

'"See!" said he, and he showed the workmen

that the wheels had not all their proper bearing on the rails. Two of them were out of place, and were running on the sleepers.

'The engineer then went back along the track, and there he found that the wheels had been off the rails for some time. There were marks left on the sleepers where the flanges had cut into the wood, and places where the men had put small sticks of wood from the tender, to bridge over little hollows and to help the wheels along. It was no wonder that the locomotive made a great deal of hitching and jolting in trying to go over such a way as this, and that it made very slow progress, when it did go.

'When the engineer satisfied himself what the difficulty was, he ordered the men to bring on the jack-screws. He set these jack-screws under the engine, and by the prodigious force which they exerted, raised the heavy weight, till he could bring the wheels into their places, and the engine then went on merrily, trundling along on the track at a great rate of speed, as if she enjoyed it.'

'And did they mend the other one, too?' asked Georgie.

'I suppose so,' replied his father.

'Now, boys in their studies,' continued his father, 'are in one respect like these locomotives. When they are not good scholars, it may be that there is some internal difficulty, which makes their

minds incapable of working well; or it may be that their minds are all right, and that the whole trouble is that they are *off the track*. In that case, all you have got to do is to get them on the track again, and then they go on very well.

'But in two respects the cases are different. The first is, that if there is any internal difficulty—that is, any malformation or imperfection in the brain, there is no remedy. We can't send the mind of the boy back to the machine-shop to have the piston packed, or the deficiency, whatever it may be, supplied. And the second is, that if we find that the trouble with the boy is that he is off the track, we cannot put him on it again by jack-screws and force.'

Juno smiled, but did not speak.

Juno and Georgie were both very much interested in this story about the locomotives, but they were interested in different ways, and it led to very different trains of reflection in their minds when Georgie's father went away. Georgie began to consider how he should like to be an engineer, if he were a man, and have it for his business to find out what was the matter with locomotives when they would not go, and screw them up with jack-screws when the wheels were off the track. Juno, on the other hand, thought of Hubert, and wondered whether the reason why he was such a poor scholar in arithmetic might not be simply that he was off

the track, and that the people who had had charge of him did not know how to get him on again.

'I mean to try to find out how it is,' she said to herself. 'How glad I should be if I could get him on the track myself, and then see him running along merrily, as that locomotive did!'

Both were silent while these thoughts were passing through their minds. At length Georgie interrupted the silence by asking,

'What are *flanges*, Juno?'

'I'm sure I don't know,' said Juno. 'I never heard of them before.'

CHAPTER IX.

THE LOFT.

HUBERT received so little encouragement or help, that is of the right kind, while he was at his aunt's, that he soon took every occasion that he could to go away from the house, and the place where he liked best to go was his cousin Georgie's. Georgie had a certain time for studying every day, under Juno's charge; and Hubert, hating as he did everything connected with school, carefully avoided going to the house at those times, for fear that he might in some way be drawn in to take some share in the studies.

He had not begun to go to school yet, since he came to his aunt's. His aunt had spoken to him two or three times on the subject, but he seemed very unwilling to go to any school, and she was, moreover, not entirely decided what course it would be best for her to take in respect to his education. So she postponed the decision from day to day, intending in the mean time to give him

some lessons every day herself—when she had time.

But she seldom had any time to spare, and so Hubert escaped study almost altogether.

While he was at Georgie's one day, and the two boys had been talking a little while about tools—

'I wish I had a shop,' said Georgie.

'We could make a shop,' said Hubert, 'if we could only find a place to make it in.'

'How big a place?' asked Georgie.

'We don't need a very big place,' said Hubert. 'We only want a window, and room enough before it for a bench.'

'Let's look around in the sheds and barns,' said Georgie, 'and see if we can't find a place.'

So they looked about the buildings, but could not find any place that seemed to be suitable that was not already occupied.

'We'll go and ask Juno,' said Georgie. 'She can find a place for us, I'm sure.'

'Oh, no!' replied Hubert. 'A girl would not know anything about a place for a shop.'

'We will ask her at any rate,' said Georgie. 'Juno knows almost everything.'

So the boys went across the yard to the door which led into the part of the house where Juno was likely to be found. Hubert remained outside upon the piazza while Georgie went in. Very soon he returned, bringing Juno with him.

Juno went with the boys through the back rooms and sheds, looking everywhere for a window to spare where a bench might be placed, but none was to be found. The space near every window seemed to be occupied, and all in such a way, that it was evident they could not be spared for any purposes of play.

At last Juno stopped at a particular part of one of the sheds, and began to look up toward the roof. The roof was pretty high, and sloped down each way from the centre to the sides.

'There's room enough up there,' said she, 'if we could only get at it.'

'We can get at it,' said Georgie, eagerly. 'We can get a ladder.'

'You would have to have a floor laid,' said Juno, 'and stairs to go up, and a window made. With those things done, you could have a nice loft there, that would make you a very good shop.'

'We could do all those things ourselves, Hubert,' said Georgie, looking quite elated, 'couldn't we?'

Georgie said, 'ourselves,' but he meant principally Hubert, with such little aid, perhaps, as he could render.

Hubert did not seem quite so sanguine. He said that they could not make the window, nor the stairs, nor could they put in the beams for the floor. If the beams were put in they could lay the

floor-boards, he thought, and they could make the bench.

Juno found a place where a flight of stairs could be made, and Georgie said immediately, that he meant to ask his father that very day to come and see the place, and have the loft made for him. 'All except the floor,' said he. 'We can do that if he will have the beams put in.'

The result of all this was, that when Georgie's father came to see the place, and learn about the plan which Juno had formed, he at once approved of it. He thought that even if Georgie should not use it long for a shop, such a little room would be useful in other ways. So he sent for a carpenter and had the alterations made at once. The stairs were made, rough it is true, but strong and sufficient for the purpose. The joists, too, were framed in, to support the floor, and a nice window, with an upper and lower sash, was put in at the end.

The boys watched the carpenter with great interest, while he was doing this work, and learned all they could. They asked him some questions about laying the floor. He told them that they had better find some old boards lying about to put on the joists at first, for them to stand upon while putting down the permanent floor. He asked them whether they were going to have a single floor or a double floor.

'A single floor will be best, Hubert,' said Georgie. 'We can make it quicker.'

'A single floor will *do*, in such a place,' said the carpenter, 'but a double floor will be better for two reasons. In the first place, it will be stiffer, and then in the second place, with a single floor, when you sweep it, the dust will go down through the cracks, and fall upon whatever is below. But if you have a double floor, you take care to lay the boards so that the cracks in the upper layer do not come over any of the cracks in the lower, and so the dust cannot get through.'

It had been agreed between the boys and Juno, that if they undertook to make the floor for their shop, they were not only to do the work, but to make all the calculations themselves. Hubert was at first rather unwilling to undertake any calculation, for he had an idea that calculation was arithmetic, and he hated arithmetic. He, however, consented, upon Juno's promising to help him so far as should be necessary.

So when the time came for them to begin their work—which was not until more than a week after the plan had first been formed—Juno told them that the first thing was for them to calculate how many boards they would want for the flooring. 'That,' said she, 'is Mensuration of Superficies.'

'Oh, dear me!' said Hubert, in a despairing

tone. 'That's in the arithmetic—away over beyond the middle,—I can't do that. I have not got anywhere near so far as that.'

'Ah!' said Juno, laughing. 'I frightened you with a hard word. The thing itself is *rather* hard, I admit, but you can do it. You have not got to go to any arithmetic for it. It is all in your head. You have only to bring it out.'

'I'm sure there's nothing about that in *my* head,' said Hubert.

'We'll see,' said Juno. 'You know what a square foot is, don't you?'

'Oh, yes,' said Hubert, 'I know that.'

'And they sell boards by square feet,' continued Juno. 'So that before you buy your boards for a floor, you wish to know how many square feet it will take to cover it.'

Juno then went on to explain that if a board was one foot wide, there would be as many square feet in it as it was long, for every foot in length, with a foot in width would make a square foot; and that if a floor was just as long as that board and twenty feet wide, it would take twenty such boards to cover it; that is to say, there would be twenty times as many square feet required as there were in the first board; and so with any other number.

'Thus you see,' said Juno, 'that in order to calculate how many feet of boards you need, all

you have to do is to measure the length and the breadth of the floor, and then multiply the numbers together.'

'That's easy enough,' said Hubert. 'We'll go and do it now.'

So the boys went and made the measurements, and when they came they wrote the numbers down upon a slate, and then multiplied them together. To make the calculation more simple, they reckoned parts of feet as whole feet, by Juno's recommendation. They then doubled the number of feet which they thus obtained, as it had been decided to make a double floor; and the calculation was completed.

'Only,' said Hubert, 'we must buy boards of the right length to cut to advantage. If we can find any just the right length to go one way, that will be the best; or twice the length, and then we can saw them in two, and that will do very well. We don't want any more joints than we can help in our floor.'

'We can have *some* joints, I suppose,' said Georgie.

'Certainly,' said Hubert, 'we can have some joints if it is necessary. And we must pick out all our poorest boards for the under floor.'

'Yes,' said Georgie, 'so as to have the best ones on the top, where they come in sight.'

CHAPTER X.

GOING UP A MOUNTAIN.

ALTHOUGH, as we have seen, Hubert was very ingenious and very well informed about mechanics, he was a very poor scholar in respect to all school studies. The reason why he was so poor a scholar was that he had become discouraged.

How he came to be discouraged was thus. But first I must tell the story of the two children going up a high mountain. One was a small boy named Johnry, and the other a small girl named Jenny. The boy was accompanied by his brother, whose name was Minax, and the girl by her sister, whose name was Lura. The two children were of about the same age. They were going up the mountain on different sides, though by equally steep and difficult paths, so that one had as good a chance as the other, and they were going to see which would get to the top first. In conducting her little sister up, Lura's policy was to *draw*, but that of Minax was to *drive*.

After Minax and his brother had gone up the

first steep ascent made by the path, they stopped a moment to rest, and while they were resting Minax said,

'We must not stop to rest here long. We have not done much yet. Look up and see how high the mountain is above us. We have scarcely begun the hard work yet. Come, we must get on.'

So they went on.

In the mean time Lura and her sister had gone up the first ascent on their side of the mountain. When they sat down to rest, she said to her sister,

'See! How high we have got already. We can look down upon the tops of all the houses. It is quite a steep pitch that we have come up. You have made an excellent beginning, and you can stay here and rest as long as you like.'

'I'm rested now,' said Jenny. 'Let us go on and climb up some more.'

Johnny felt somewhat discouraged by his brother's showing him how little they had done, and how much more remained to be done. Still he went on. Minax tried to stimulate his exertions by saying,

'You get along pretty well considering that you are such a little boy. I wish you could go faster, but I suppose you cannot do any better, and I ought not to expect it. But we've got a great way farther to go, so we must hurry along.'

'Oh, dear me!' said Johnny with a sigh

'How much farther is it to the top? And he sank down on a rock by the wayside in despair.'

Lura, on the other side of the mountain, said to her sister,

'We need not hurry, Jenny. We are getting along very well indeed. Look back and see how high we are already. You can climb mountains a great deal better than I thought you could. But I might have known that you could climb pretty well, for you are getting to be quite a large girl, compared with what you were two years ago.'

'I like to climb,' said Jenny. 'How high we are already.'

'Look!' she said, stepping up upon a rock by the wayside in order to see better down into the valley. 'Oh, how high!'

Both parties went on a little farther. The boy seemed to have no heart for the work, and dragged himself slowly up the path, stopping every minute to rest and breathe, and to look up at the steep ascent before him.

'Come, hurry along,' said Minax. 'We have not got more than three-quarters of the way up yet, and think how ashamed you would be if Jenny should get there before you. And if you don't go faster she will.'

'I don't care,' said Johnny. 'And I don't care if I never get there at all. And he sank down upon another stone by the wayside in despair.'

'Now, Jenny,' said Lura; 'you can stop and rest a little while if you please. You have done so well, and got up so high, we must be full three-fourths of the way up to the top. So there's no hurry. Even if Johnny gets there before us, it will be of no consequence. He may as well have the pleasure of beating as you.'

'Yes,' said Jenny. 'Only now that we have got so high, I want to be at the top.'

So she went on briskly, Lura following her, until before long they both reached the summit. They waited there some time, but Johnny didn't come, and so they began to descend by the other path, expecting to meet Johnny on the way, and nearly at the top. Instead of that, however, they saw nothing of him for a long time, but finally overtook him half-way down the mountain, going back, worn out and discouraged.

I advise all the older children who may read this book, that whenever they undertake to lead their younger brothers or sisters up a mountain, or over any kind of difficult way, whether in a road or in their studies, to act on Lura's system, and try to lead and encourage them along, rather than frighten and drive them.

CHAPTER XI.

LEARNING LONG DIVISION.

THE reason why Hubert was such a poor scholar, was because he had become discouraged. He had never gone farther in arithmetic than 'Long Division,' and it seemed to him that long division was something that he could never learn.

He found multiplication very hard. He did not know the multiplication table well, and so he often made mistakes in multiplying. So his teacher put him forward into short division, saying, that she was going to put him into a new place, and hoped that he would do better there than he had done.

Not long after this a new teacher came, and, when in asking the several scholars where they were in their studies, she came to Hubert, he told her that he was in short division.

'In short division!' she repeated with an air of surprise. 'Why, you ought to be farther than that—such a great boy as you. You must try to

get along faster, or people will think you are a dunce.'

So she opened the book at long division, and directed him to begin there.

'It is all explained in the book, how to do the sums,' she said. 'You must read the explanations, and then take the first sum and do it. When it is done bring it to me, and I'll tell you if it is right.'

So Hubert took the book and slate to his seat, and looked at the place where the teacher told him the explanations were. Now, it is true, that the process was all fully explained there, but it is a great art to understand explanations of processes from a printed book, and it was an art that Hubert had never learned. He looked at the explanations, and it seemed to him that he never could understand them. Then he looked down below to see what the first example was. It was to divide 34,108 by 23. He wrote the dividend on the slate and also the divisor at the left hand of it, with a curved line between, as he had been accustomed to do in short division, and then stopped. He had no idea what to do next. He looked back to the explanations, but did not see anything there which seemed to tell him what to do. So he sat still and did nothing.

By and by the teacher called him to her desk to show her his work, but found that he had not

done anything. She asked him why he had not done the sum. He said that he did not know how to do it.

'Why, it's very easy,' said she. 'The first thing is to see how many times 23 will go in 34. It will go once. So write down the 1.'

Hubert wrote the figure 1 on his slate down below the sum.

'No, not there,' said the teacher, 'I should think you would know better than that.'

Hubert had written it under the sum, because the teacher had directed him to write it *down*, and he thought that that was down.

'You must write it in the quotient,' she said, speaking a little impatiently.

Hubert did not know where the quotient was, and so he stood looking at a vacant spot in the air, half-way between his eyes and the slate—utterly bewildered.

'Here!' said the teacher, 'give me the pencil.'

So she took the pencil out of Hubert's hand, and making a little curved line on the right hand of the dividend, with its concave face toward the right, she wrote the 1 beyond it.

'There,' said she, 'now take your seat and multiply. After you have multiplied, you know you subtract, and then you bring down the next figure, and then divide again, and so on. It is

very easy to do, if you will only exercise your wits a little.'

So Hubert went back to his seat, but he had no idea at all what he was to do. The teacher had told him that he was to multiply something or other, and also that he was to exercise his wits. So he sat for a while in his seat, sometimes looking vacantly at his slate,—then at the explanations in the book,—and then for awhile his attention was turned to watching a fly that was walking along over his slate, trying to find something to eat there. Hubert wondered whether the fly could eat slate-pencil marks, and waited to see whether, when he reached the figure 1 which the teacher had made in the quotient, as she had called it, he would eat it. The idea of a fly eating a quotient for dinner, brought a smile to his face. He suppressed the smile as soon as he could, but not before the teacher saw him, and she at once put down a black mark against his name, for playing in study hours.

When the arithmetic hour had expired, the teacher gave all the scholars something else to do, but at the close of the school she made a second black mark against Hubert's name for failure in arithmetic.

Hubert went on in pretty much such a way as this, in trying to learn division, until at length his

mother died, and soon afterward he came to live with his aunt.

His aunt, after he had been at her house some days, began to consider what it would be best to do in respect to his studies. One thing she thought which might be done was, to find some good school to send him to. Another plan was to find a suitable person to come and teach him at home. Mrs Wood could not decide at once what would be the best plan, and so she said to herself that she would think about it, and in the meanwhile she would endeavour to find time to attend to his lessons a little herself.

She accordingly took occasion one day to question Hubert a little about his studies. Among other things, she asked him how far he had gone in arithmetic.

'As far as long division.'

'Haven't you got farther than that?' she asked.

Hubert shook his head.

His aunt looked surprised. 'I suppose at any rate you have got *through* long division,' said she, 'so that you can do all the sums in that rule?'

Hubert looked a little ashamed, and said, 'That he had only begun it.'

His aunt paused a moment, with a somewhat dissatisfied and disappointed expression of countenance, and then said,—

'That is rather discouraging, Hubert, I must say. I had heard that you were very backward in your studies, but I had hoped that you were farther advanced than that. But still we must make the best of it, I suppose. I will help you all I can. Long division is very easy, and if you are smart, you can learn it very soon.'

'I thought it was very hard,' said Hubert.

'Oh, no,' said Mrs Wood, 'I have known boys a great deal younger than you, that could do all the sums in that rule very well. You mustn't call long division hard. If you do, I do not know what you'll say to what you'll come to by and by. However, we will see. I must do something before long about your studies, to help you make up for lost time. You see you won't like, when you go to school again, to have everybody laugh at you, for being so backward, and thinking that you are a dunce.'

Mrs Wood talked in this way to Hubert, thinking that by making him ashamed of his ignorance, she should stimulate him to make greater efforts to acquire knowledge. But the effect of what she said was unfortunately only to discourage him. He felt as if there was an immense wall of difficulty before him on the road of arithmetic,—one which he did not see how it was possible for him to surmount. He hated arithmetic more than ever.

CHAPTER XII.

JUNO'S SCHOOL.

JUNO, as has already been said, had charge of Georgie's studies. The idea of Georgie's mother was, that all that it was wise to attempt to teach boys, until they were about ten years of age, was reading, writing, language, and readiness, skill, and correctness in common computations. Juno was abundantly qualified to teach all these. Reading she taught him by hearing him read to her from some entertaining book, such as was adapted to interest and amuse him; writing, by having him write every day in a kind of journal which he kept, and in which he wrote a great variety of things; language, by reading to him herself for half-an-hour every day, in some book a little in advance of him, in respect to the subject and language, but which was calculated to interest him as she explained it; and, finally, computation, by having him spend half-an-hour each day in solving questions in mental arithmetic, and in adding columns of figures.

Thus her school was very simple in its principles,

and in the branches which were of fundamental importance.

Now, when Juno became acquainted with Hubert, she began soon to feel a strong desire to have him come into her school, as a fellow pupil for his cousin Georgie. She did not know, however, whether Georgie's mother would like such a plan. After some hesitation she at length concluded to ask her.

So she took an opportunity one day to explain the case to her, and to ask her whether there would be any objection to her taking him in to study with Georgie sometimes.

'I'm told he is a very dull scholar,' said Georgie's mother, 'and so I should not think you would like to have the trouble of him.'

'That is the very reason why I wish to have him come,' said Juno. 'He says he hates arithmetic, and I would like to try an experiment with him, to see if I cannot make him like it.'

The lady smiled, and said she had no objection to Juno's trying the experiment, and added,

'I think you will succeed if anybody can. But do not make any permanent arrangement. Invite him only for a few days, so that we may discontinue the plan at any time without occasioning any disappointment.'

Juno promised to do so, and then went away.

A few days after this Juno asked Hubert how

he would like to come the next morning and be
honorary member of her school. Hubert said
did not know what an honorary member was.

'It is one who comes when he likes and g
when he likes,' said Juno, 'and has nothing to
except what he chooses.'

'I should like that very well,' said Hubert.

'An honorary member does pretty much wl
he likes,' said Juno, 'only he must not do anythi
to disturb the others. If you come you can
away when you please; but as long as you st
you mustn't do anything to interrupt Georgie at
work.'

'No,' said Hubert, 'I won't interrupt him.'

'The best time to come,' said Juno, 'will
at ten, and then you can see him at work on
journal.'

Now, Juno called Georgie's book his jour
because he wrote in it every day; but it was
by any means exclusively an account of his o
daily doings. It contained a great variety of
ferent articles, anecdotes, poems, riddles, con
drums, and anything else that he found which
thought would make his journal entertaining.
also often put in pictures when he found any t
he thought would serve as an embellishment to
pages; only whenever a picture was put in, Geor
was accustomed to write some account of it
description of it, to go in too. These accounts

descriptions he wrote first on another piece of paper, and then, when Juno had corrected them, he copied them under the picture in his book.

In a word, Georgie could put anything he pleased into his journal, only he was required to write every word in it in a very plain, round hand, as well as he could, forming every letter carefully, so that his book could afterward be read as easily by any other person as if it had been printed.

In accordance with the invitation which Juno had given him, Hubert came the next day as an honorary member of the school. He arrived just as Georgie was commencing his work upon his journal for that day, and he stood by his desk while he was at work, watching his operations with great interest. Georgie had a box upon his desk where he kept the scraps which he had cut out from newspapers, and the pictures which he had selected. These were the materials from which he was accustomed to choose each day what he should put in. After watching Georgie at his work for some time, Hubert amused himself for the next half-hour in reading these papers and in looking at the pictures. He became so much interested in the idea of keeping such a journal, that he almost wished that he had one himself.

Things went on in this way for several days. Hubert came during the journal hour and looked over Georgie at his work, amusing himself by some-

times seeing Georgie write, and sometimes by reading the collection of stories, riddles, and other things which were contained in the box.

At length, one day he told Juno that he would like keep a journal, and asked her whether she could give him a book and let him begin.

Juno shook her head gently, and then said,

'Ah! you're only an honorary member of my school?'

'What kind of a member is it,' asked Hubert, 'that is not an honorary member?'

'An active member,' said Juno.

'And could not I be an active member?' asked Hubert.

'You would not like it, I'm afraid,' said Juno. 'For then you would have to come under the rules.'

'What rules?' asked Hubert.

'I should say the *rule*,' said Juno, 'for there is but one rule.'

'What is that?' asked Hubert.

'To do just what I say without any objections. Whatever I should give you to do, you would have to do without showing any unwillingness at all.'

'And what should you give me to do first?' asked Hubert.

'Well, I should very likely give you the hardest thing I could think of,' said Juno; 'that

is, provided I thought you could do it. I think I should begin, perhaps, with long division.'

'Oh, horrid!' said Hubert.

Juno smiled, but made no reply.

'I can't understand long division,' said Hubert. 'I have tried a great many times and it's no use.'

'I don't wonder you say so,' replied Juno. 'There's nothing harder in all the arithmetic than long division.'

'Long division is hard enough,' said Hubert, 'but I thought there were a great many things that were harder on beyond.'

'No,' said Juno, 'I don't think there is anything harder; that is, anything I mean that is harder for the boy when he comes to it, than long division is when he comes to that.'

I have no doubt that Juno was right in this. Indeed, I should not be at all surprised if any great astronomer were to say that there was nothing in the whole course of his mathematical studies in algebra, in analytical geometry, or in the integral and differential calculus, that was more difficult for him, *when he arrived at it*, than long division was for him when *he came to that*, in his studies at school when he was a boy.

'I tell you plainly,' said Juno, 'that it is very hard. It is a great thing for a boy to learn it.

But I believe you can learn it; and if you become an active member of my school, that would be the first thing you would have to begin upon. And if you think from what you know of me, that I should require anything of you that would distress or trouble you, or give you pain, then you had better not be an active member of my school, but be contented to be an honorary member.'

'She won't, Hubert, you may depend,' said Georgie.

'No,' said Hubert, 'I'm sure she won't, and I'll come.'

So he came the next day, bringing his slate and pencil, and also his arithmetic with him. Juno said he would not need the book at present.

When the time for arithmetic arrived, Juno said to Hubert that she should wish to have Georgie help her about it.

'I suppose,' she added, addressing Hubert, 'that you will have no objection to having Georgie help me.'

'Oh, no, indeed!' said Hubert.

'You see,' added Juno, 'you have helped him so much about his shop and tools and fishing-lines, that he ought to be willing to help you about the arithmetic.'

'I shall *like* to have him help me very much,' said Hubert, 'and I'll pay him in helping him about his shop.'

CHAPTER XIII.

ABOUT TOOLS.

IN the mean time the boys in their play hours were getting along very well with their shop. They had laid a double floor, putting the poorest boards below, and then covering the cracks by a second layer of better boards. These boards were rough, inasmuch as planed boards were not necessary for such a floor.

'Rough boards will do just as well,' said Hubert, 'for a shop floor.'

'But planed boards would be better,' said Georgie.

'Yes,' said Hubert, 'perhaps so, but it will cost something to get them planed at the mill, and we had better save our money to buy tools. Besides it is too hard work. Planing looks very easy, but it is just about the hardest work for boys that they can have. A boy can saw and drive nails and bore holes, but it takes a *man* to plane.'

So they had decided to make the floor of unplaned boards. This was, in fact, in better keep-

ing with the walls and roof of their shop, which were not furnished at all. The boys, however, liked the place all the better for this, as it made it look more like a real carpenter's shop. A room nicely finished, and papered and painted, would not have been appropriate at all.

It is an excellent thing for boys to have some place for a shop, provided their fathers don't give them money to buy tools *too fast*. The main difficulty which boys have to surmount in doing carpenter work is, not to obtain tools, but to acquire the skill to use them. Many a boy imagines that it would be a very fine thing to be able to make boxes and wagons and mills and other such things; and that all he wants to enable him to do it, is a bench and a good supply of tools. So his father buys him a tool-chest full of tools, and employs a carpenter to make him a bench. When these things are ready the boy is greatly delighted, and goes to work; and he almost always begins with some very difficult and complicated undertaking. With all those tools he thinks he shall be able to make anything he pleases, and is above attempting anything simple. He forgets that it is not the tools which do the work, but the man, and that the means by which he does it are the *knowledge, experience, and skill* with which he uses the tools.

So he begins very zealously to make, perhaps, a martin-house, in the form of a church, with a porch

supported by columns in front, and a cupola, surmounted by a spire above. And with all his other follies, he often sets his heart on finishing it that same day. But he soon finds that it is one thing to have tools, and quite another to be able to work them successfully. His saw plagues him by running off to one side of the line, or by rubbing hard, and finally getting caught in the cleft. In attempting to shape a board for the side of his martin-house, he measures the width and then lays down a straight edge to mark the line by, with a carpenter's pencil; but as he holds down the straight edge only at one end, the pressure of the pencil against it, as he moves it along, pushes the other end out of place, and his pencil mark runs all awry. Finally, after several attempts, he gets a line straight, though the right marking is so confused by the many wrong ones, that he can hardly see which he is to go by. When he attempts to hew down to this line, the grain of the wood causes the cleavage made by the hatchet to *run in*, beyond the line, and makes his board too narrow. When he attempts to plane, he sets the plane-iron very rank, so as to take off a good thick shaving and enable him to get along faster with his work, as he is in a great hurry to get it done. But he cannot force the plane along to the end of the board. It gets stopped on the way, by the thickness of the cut; or, if he succeeds in forcing it through a few times, he soon

gets the throat choked up with shavings. He then attempts to clear the obstruction by pushing in a nail at the narrow opening in front of the plane-iron, and so notches the edge, and spoils it for future use, until it is ground again. Last of all, when he undertakes to nail the parts of his work together, he is in too much of a hurry to bore holes, and, moreover, inserts the points of his nails the wrong way, that is, with the long part of the point in a line with the fibres, instead of across them, and so wedges the fibres apart, and splits the wood in driving them.

In a word, he soon gets disgusted with his tools and his shop, and lets it go to ruin. If you go to visit it three months after the bench was made and the chest of tools put upon it, you will find everything in confusion,—edges of tools all notched and dull, handles off, nails, screws, broken gimlets, and brad-awls scattered about the bench and floor. The whole of this confusion would be half covered up with shavings, were it not that very likely the boy never got so far as to be able to make any shavings.

And all this because neither the boy nor his father understood that it is of no use to buy tools any faster than you learn how to use them.

Isaiah had taught Hubert this lesson pretty thoroughly, and so he was in no hurry to have Georgie ask his father for money to buy tools.

'We'll have a bench,' said he, 'for we can make that ourselves, and then we can get the tools afterwards as we come to need them.'

'But we must have tools,' said Georgie, 'to make the bench.'

'Not many,' said Hubert. 'We only need a saw and a hammer and nails. We can get the boards already planed at the mill. So if uncle will only let us buy a saw and some nails, we shall be all right. Then we will get more tools from time to time as we need them and know how to use them.'

'*I* think that it would be better to get all the tools at once,' said Georgie, 'and then they will be ready.'

'No,' said Hubert, 'they would only get dulled and broken and spoiled. We had better not get them any faster than we are ready for them.'

'Is that the best way?' asked Georgie.

'Yes,' said Hubert, 'decidedly the best way. Isaiah told me all about it. He told me a story about it.'

'Let's hear the story,' said Georgie.

'Once there was a boy named Joey,' said Hubert, commencing the story. 'He asked his father to buy him a chest of tools. He could buy one, he said, for ten dollars. But his father said no, he would not buy him a chest of tools, but he would buy him one tool, or thing to work with, at

a time, and as many as he would learn to use. Joey said well, and was much pleased, and he asked his father when he would begin; and his father said he would begin the very next day.

'So the next day Joey's father took him out into the shed, where there was a solid platform, and on it a log, and a stone about as big as a man's fist. By the side of it was a little board, and on the board there were a number of nails. There were also a number of short and slender sticks, which had been split off from a short piece of board, lying by the side of the log.

'His father told him the first thing he was to learn was to drive nails through narrow strips of wood, without splitting the wood. He told him it all depended on his putting in the nails right, so that the broad part of the end should go across the fibres, and that boys almost always put them in wrong.'

CHAPTER XIV.

JUNO LEARNING SOMETHING.

JUST here the boys heard steps at the bottom of the stairs, and they soon found that it was Juno coming. So Hubert stopped in his story; but Juno asked him to go on, as she should like to hear it herself.

So he began where he left off, about the right mode of inserting the points of nails. This was all new to Juno, and she asked Hubert to show her a nail and explain the case to her. This Hubert did. He showed her that the nail—a common cut nail—was somewhat wedge-shaped in one direction; that is, the sides spread a little from the point to the head, while the other two sides were parallel to each other: and that to prevent the nail from splitting the wood when it was driven into a narrow piece, the point must be inserted with the broad part crosswise of the fibres, otherwise the nail would act as a wedge, and split the wood.

Juno had never noticed this before, and said it

was very curious; and she examined the nail attentively for some time.

Then, at her request, Hubert went on with his story.

'Joey said he must have a hammer to drive his nails with, but his father said no, he must drive them with a stone. He said that Joey had not come to the hammer yet. He was at work on nails, and he could learn the right way of driving them with a stone as well as with a hammer, and that when he had learned to drive them right, and could bring half a dozen of the strips with four or five nails driven through each, without any of them being split, that would be his first lesson, and that then he would be entitled to a hammer.'

'And did he get his hammer pretty soon?' asked Georgie.

'Yes,' said Hubert; 'the next day.'

'He forgot several times in driving his nails, and put them in wrong, and when he did the wood always split; but after a while he learned to do it right, and after that, in all the nailings that he had to do, he never spoiled his work by splitting the wood, and all because he learned how to manage nails before he began upon anything else.'

'Then he got his hammer,' said Georgie, 'and what came next? He did not have to stop long with his hammer. Anybody knows how to use a hammer.'

'No, indeed,' said Hubert. 'It is a great art to

use a hammer well. Always to hit the nail on the head, and to go on driving until the head is just flush with the wood without indenting the wood at all, is a hard thing, and requires a good deal of practice and care.'

Hubert was certainly right in this, for generally when a boy is driving a nail, you can see the proof of his want of skill in the wood being indented all around it by marks of the head of the hammer, made by its missing the nail, and coming down with all its force upon the surface of the wood at the side of it instead.

'Joey's father,' continued Hubert, 'kept him practising with the hammer during the time that he wished to work, for a week, before he could be sure to hit the nail that he was driving fair and square every time.'

'He must have wasted a great many nails in learning to drive them,' said Georgie.

'No,' replied Hubert, 'not one. All those that he drove through the small sticks of wood, he knocked out again and saved. And when he was ready to practise with his hammer, his father bored a hole with an auger into a log, and Joey would put a bit of board that he was going to drive the nail into directly over it. So the end of the nail would go down into this hole until the head was driven home, and then he could very easily knock it out again.'

'That was a good way,' said Georgie.

'Yes,' replied Hubert, 'it was a very good way. Joey spoiled some of the nails by hitting them wrong and bending them; but generally he drove the same nail a great many times, until he found that he could hit at every blow.'

'I should think he would get tired of driving the same nail over and over again all the time,' said Georgie.

'He would have got tired, no doubt,' said Juno, 'if it were not that he knew he was improving in what would be useful to him in making things afterward.'

'Yes,' said Hubert, 'and then, besides, there was another boy with him, and they used to play together doing it. One boy would take the hammer and try till he missed, and then the other boy would take it, and so they made it a kind of a game. At last, after two or three days, Joey asked his father to come out and see how he could drive nails, and he drove in two or three without missing one blow.

'Then his father said that his next tool would be a saw, and that now he had got so far in learning carpentry that he could begin to make something. The first thing to be made was, he said, a nail-box to keep his nails in, when he had a shop. So his father bought Joey a saw, and marked some lines on a board for him to practise sawing upon

until he could keep exactly upon the line. He gave him an old stool for a saw-horse, to lay his board upon while he was sawing it. When his father found that he could saw pretty straight, he took some thin boards, not more than half an inch thick, and marked out of them five pieces, one for the bottom and four for the sides, of the right size, to make a little nail-box about eight inches square at the bottom and two inches high. Joey sawed these pieces out quite true, for he had learned to make his saw follow a line pretty well. When he had sawed these pieces out he nailed them together. He did not split any of the boards in nailing them, for he had learned how to put the nails in right; and did not indent the wood any by the head of the hammer, for he had learned to drive them right.

'And so Joey went on,' continued Hubert. 'His father would only buy him one tool at a time, and not get another till he had learned to use that.'

'And of course every new tool was a great pleasure to him,' said Juno; 'much greater than if he had had them all at once.'

'Certainly,' said Hubert; 'and we had better go along the same way, Georgie. We have got a hammer, and all we want for our bench is some planed boards and some nails and a saw.'

When Georgie informed his father that they were ready to build their bench, and said that they

would need a saw, some planed boards, and some nails, he at once gave Georgie permission to procure them. He said they must calculate how many feet of boards they would require, and how many nails, and then go with the small hand-cart to the mill for the boards, and also to the hardware store for the saw and the nails; and he gave them the money to pay for all these things.

Hubert made the calculation very easily of the quantity of lumber which would be required for the bench—so many feet of joist for the four legs, and so many feet of boards for the top and sides of the bench. The bench was to be two feet wide, two feet eight inches high, and six feet long. Hubert made his calculation to have boards to cover the top, and to come down about a foot on the sides and at the ends.

When Juno saw how well he made this computation, she said to herself that she thought there could not be any difficulty with the calculating machinery in Hubert's brain, but she was convinced that the only trouble with him, in respect to his arithmetic, was that he was 'off the track.'

All this that has been related in this chapter, took place before the day when Hubert came to be an active member of her school; and Juno, after she had heard Hubert's story and returned to the house, resumed her sewing, and as she sewed her thoughts reverted to what she had heard. The

first thought was the one already referred to; namely, the conviction on her part that there was no natural incapacity for computation in Hubert, to account for his dislike to arithmetic, but only that he was, as she expressed it, 'off the track;' and that the main thing which she had to do was to put him on again. Then she began to think of Hubert's story of Joey.

'Joey's father was a very sensible man,' she said to herself, 'in teaching him one thing at a time. Indeed, he sometimes only taught him part of one thing at a time. Who would have thought of dividing such a simple thing as driving a nail into two parts, and teaching them separately? And yet that's what he did. Setting the nail properly was one part, and hitting it right with the hammer another.

'I must manage in the same way in teaching Hubert long division. I'll see how many parts I can divide it into, and teach him one at a time. That is the way they make it so hard for the children in schools sometimes, poor things! They try to make them eat too fast, and give them too large mouthfuls, and so choke them, as I did my little bird.'

Then Juno began to think of a young bird which she had when she was a child.

'Poor little thing!' she said, 'I remember just how he looked when my brother brought him home

to me. He said he found him on the ground. Some boys had shot the mother-bird off the nest, and knocked the nest down to the ground; and all the little birds were killed except this one. How wide he opened his mouth, poor thing! I thought he opened it so wide because he was very hungry, and wanted me to give him good big crumbs of bread, and so I did, and choked him to death.

'I don't wonder that the children in school get choked sometimes, they give them such big things to swallow at a time. Long division is a great deal too big a thing to be taken all at once. I'll divide, and let Hubert take part of it at a time.

'And they don't have the same excuse for giving the children too big mouthfuls,' she continued, musing, after a moment's pause, 'that I had with my bird, for the children don't open their mouths wide for them at all.'

CHAPTER XV.

LONG DIVISION DIVIDED.

WHEN the time arrived for Hubert to begin his studies, he took his slate and sat down at a table which Juno had prepared, where there was room enough for Georgie to sit by his side. Juno then said,—

'There are four things to be done, one after the other in long division. First you have to divide in a certain way; then you have to multiply; then you have to subtract; and then you have to bring down a figure. The last is the easiest, and that is what you will begin with, Hubert. That is all you will have to learn to-day. You see you are going to learn one thing at a time. You will do the bringing down, and Georgie will do all the rest. But in order that you may see that Georgie does his part regularly, I wish you to write these words on the corner of your slate, one under the other in a column.'

So Juno dictated the words as Hubert wrote them, as follows:

Divide,
Multiply,
Subtract,
Bring Down.

Then Juno gave out a question. It was to divide a long row of figures by 13. The row of figures extended half across the slate, from the left side to the middle.

She then directed them to begin. Georgie was to commence the operation, taking one step at a time, and saying what he was doing as he went along, until he came to *bringing down the next figure*, in the dividend, when he was to pass the pencil into Hubert's hands, and let him do that part.

So Georgie began.

'The first thing, you see,' said Georgie to Hubert, speaking in an undertone, 'is to divide. The way I do that is to see how many times 13 will go in the first two figures, which are 27. I think it will go twice, and so I put the 2 down in the quotient.'

'Now,' said Georgie, 'the next thing is to multiply.'

As he said this he pointed to the word *multiply*, in the list of things to be done which Hubert had written on the slate. Then he multiplied the 13 by the figure in the quotient, namely 2, and set the result down under the two figures which had been divided.

'Now, said Georgie, 'the list says that the next thing to be done is to *subtract*, and this is the way we do it. He then drew a line, made the proper subtraction, and set down the remainder underneath.'

'Now,' said Georgie, 'it comes your turn. See, the next thing in the list is to *bring down*.'

So he gave the pencil into Hubert's hand, and showed what the figure was which was to be brought down, and where he was to put it.

Georgie went on with the work in this way, being careful in every step that he took, to show Hubert the word on the list which denoted it, and stopping to let Hubert bring down the figure, at every return of the word directing it. Hubert was at first, when his turn came, a little at a loss to know exactly what figure it was that he was to bring down, and where he was to put it; but he soon came to understand it so, that he did it promptly and correctly the moment the pencil was put into his hand, and he was quite pleased to find that he could do it so readily and so certainly. They went on in that way until the operation was completed. Toward the last part of the time, Hubert began to find his part of the work somewhat too easy, and he had a great mind to ask to be allowed to do the subtraction, too. But he concluded on the whole to proceed just as Juno had directed, and so he went on to the end, taking no

part in the work, except to bring down the new figure, when a new one was required.

When the work was done the boys took the slate to Juno. She looked over it carefully, but said nothing till she reached the end. Then she nodded her head with a look of satisfaction, and said, 'All right.' She did not say a word in praise of Hubert for having been attentive and diligent, and for having succeeded in his work well; but seemed to take it for granted that of course he would succeed and would do it well.

Now Juno in this lesson had accomplished a great thing for Hubert in respect to his intellectual training. Some persons might perhaps say, 'Oh, no; it was a very *little* thing. A very little thing indeed. He had learned nothing of long division, but just how to bring down the figure after each subtraction, which is almost nothing at all.'

But it was not the change in respect to his arithmetical knowledge, that was the important thing in this case. It was that she had induced him to work steadily for half-an-hour, without impatience, vexation, or fretfulness in doing something with figures; and had thus prepared the way for his going on to something that was really important in respect to the figures themselves. In a word she had got the wheels up from among the sticks of wood and mud, and on the track. She was very much pleased with the half-hour's work.

'He'll go along now,' said she, 'I feel pretty sure—that is, if I don't push him along too fast at first, and get him off the track again.'

The next day, when the arithmetic hour came, she gave the boys the same example that she had given them the day before, only this day Hubert was to take for his part the 'Subtraction,' as well as the 'Bringing Down.'

Hubert liked his lesson the second day even better than he did the first. He began to feel that he was now really entering upon solid work. After he had performed the subtraction several times, he told Georgie that he believed he could do the multiplying too, and he asked Georgie to let him try. He had watched Georgie, of course, as he performed his portion of the work connected with each figure of the quotient, so that he began to have some connected idea of the whole process, and certainly thought that he could take that additional step—namely, the multiplying. Georgie said he might try. Accordingly, after the next figure was set in the quotient, he performed the multiplication of the divisor by it himself, and brought it right.

As soon as he had finished this step, and had set down his figure, Juno said,—

'Hubert, what do they call it when a saw runs off the line when you are sawing?'

Juno remembered having heard Hubert talking

about this difficulty at one time, in conversation with Georgie.

'They say *it runs*,' replied Hubert. 'It is because the teeth are set wider on one side than the other. At least that's what Isaiah said, but I never could see any difference.'

'You don't like such saws very well, I suppose,' said Juno.

'No,' replied Hubert. 'I want a saw to keep true to the line I make for it.'

'Then you won't think it unreasonable, I suppose,' said Juno, 'if I should like to have my scholars keep true to the line I mark out for them.'

'No,' replied Hubert. 'Of course not.' He had no idea, however, what it was that Juno referred to.

'I drew a line,' rejoined Juno, 'for you and Georgie to follow,—which was, that *you* should perform the subtraction, and Georgie do all the rest. Are you on that line or off of it?'

'We've run off,' Hubert said, laughing. 'I am doing the multiplying, and I was only to do the subtracting.' Then looking toward Juno, he said,—

'I found I could do the multiplying, too, and I thought you wished me to get along as fast as I could.'

'True,' said Juno, 'and so you are not at all to blame for running off the line. I don't blame you at all for it. You did what you thought was

right. Then besides, perhaps, the line was wrong; perhaps it would have been better for me to have said that you were to go on doing nothing but the subtracting and bringing down, until you found that you could do the multiplying, too. But I did not say that. And which would you like best, a saw that would always keep to the line that you drew for it, wherever the line run, or one that could think a little, and would run off when it thought the line was wrong?'

Hubert laughed, and turning to Georgie, he said, 'Go ahead, Georgie, I'll only subtract and bring down.'

Juno was very gentle and good-natured in her methods of management, but she was extremely decided and firm in requiring all children that were placed under her charge to conform strictly to her directions in all cases. If a child thought that her directions or commands in any case were wrong, she did not defend them, by explaining the reasons for them, since she wished the children to understand that they must obey them, whether they understood the reasons or not.

Hubert did perfectly right, or rather, he did no wrong in going beyond Juno's instructions, because he had not been with Juno long enough to know that she never gave definite and positive instructions, without some good reason for them, founded on careful consideration and reflection; and that her

instructions must, when given, be implicitly obeyed. He thought he was doing what would please Juno in going on faster than she had expected; supposing that she would, of course, wish him to go on as fast as he could. But he was mistaken in this. Juno did *not* wish him to go on as *fast* as he could. She had got the engine on the track as she hoped, but she thought it best to go quite slowly and cautiously for a time. Or, to speak without any metaphor, Hubert had been so crowded and pressed and worried, by being forced forward beyond where he was capable of going, that she thought it better to hold him back for a time, where his work was easy—too easy even—so as to awaken and strengthen in his mind the desire to go forward faster. This desire to take another step onward was the first springing up in his mind of a *love* for arithmetic, to take the place of the hatred of it which the policy of driving him on too fast had engendered; and she wished to give this new feeling time to take root a little before she put any strain upon it. If he had gone on to the multiplying, before he had become entirely familiar with the subtracting and bringing down, and had then become perplexed and puzzled among the three,—the wheels would have been off the track again,—or would be in danger of going off,—and her work would have to be done over again.

She would not explain these reasons to Hubert,

however, at this time, because she wished his following the instructions which she had given him, to rest entirely on the *principle of obedience;* though in enforcing and insisting upon this principle, she spoke and acted in a very gentle and good-natured manner. She wished Hubert to do as she said, *because she said it*, and not because he saw that the reasons for it were good.

And this is the way in which all children ought to obey their parents. They must do thus and so, or avoid doing this or that, because their parents have so directed, whether they understand the reasons or not. In many cases they would not understand the reasons if they were explained. In many other cases there is not time to explain them.

I think it very probable that Juno's comparison of a child disobeying the teacher, to the case of a saw which runs true to the line, aided very much in leading Hubert to fall in readily with her system of implicit obedience. He was so much interested in everything connected with mechanics, that such a comparison was, of course, calculated to strike his fancy quite forcibly. Then, besides, he had such agreeable associations with the idea of a tool working true, and entirely in subservience to the will of the workman, that it helped him very much to see the beauty of implicit obedience to rightful authority, in a child,—a beauty which many children are very slow to perceive.

Running true to the line, became afterwards quite a proverb between Juno and the boys. When she sent them anywhere with special instructions, instead of saying, at last, 'And now be sure to do exactly as I have told you.' She would say, 'And keep true to the line.' This meant the same thing,—but it had a greater influence on the boys' minds, put in that form; for they were both decidedly averse to proceeding in such a manner as to make their action come under the same category with that of a saw, with its teeth set unevenly, so as to make it run off the line and go awry.

Juno went on in this way for a fortnight, allowing Hubert to take only one step each day in learning the several parts of the complicated process of long division. It was an excellent exercise for Georgie as well as Hubert, as it gave him practice in computation, and aided decidedly in advancing the development of his arithmetical powers. At the end of that time Hubert understood the process very well, so far as to be able to go on with it quite readily, when there was no special difficulty in the way.

It is true that there are special difficulties sometimes to be encountered, and Juno had not yet taught him anything about these. She had only taught him the regular steps of the process, so that he could go on by himself so long as everything went smoothly and well. When he became in-

volved in any difficulty, she did not attempt to explain the nature of the difficulty to him, and try to show him, *at the time*, how to get out of it,—as many persons might, perhaps, at first think was the proper course; but would let Georgie take the pencil and carry the operation past the difficulty, or would do it herself, and then let Hubert take it, and go on again when the way was clear. But this point will be explained more fully in the next chapter.

CHAPTER XVI.

DIFFICULTIES.

WHEN you have learned to practise any art in its regular course, while everything goes on well, you have only half learned it. That is but the first stage of the work. There is a stage which is quite as important, and which, perhaps, requires still more effort and attention than the first—and that is to learn how to manage when unexpected emergencies and difficulties occur. To know how to act while everything goes smoothly and prosperously, is one thing; to know what to do when accidents or obstacles occur, is another, and a very different thing.

For instance, a boy undertook to teach his young brother how to split logs of wood with beetle and wedge. He showed him how to make first a cleft with an axe, in which to insert the wedge. This is necessary because the wedge is not usually sharp enough to enter by itself, and also because, even if it were sharp, it would be very difficult to hold the wedge with one hand against the wood, and strike hard enough with the heavy beetle to

make it enter with the other. He also taught him, when he had driven in one wedge far enough to open the cleft a little, how he was to put in another and another, following up the cleft until the log was split open entirely. After the boy had done this and had split open two or three logs, he thought he understood the management of a beetle and wedge entirely. But his brother said no.

'You have learned,' said he, 'the regular work, but you have not learned how to get out of the difficulties. Sometimes when you have a gnarled and knotted log to split you get all your wedges driven in home, and the log does not come open, but holds the wedges tight. Sometimes one of the beetle-rings comes off, or the handle comes out. You have not learned what to do when such accidents happen. You will have to come to me to get you out of the difficulty in such cases, and then you can go on again. So you have yet only half learned the art of splitting wood with beetle and wedges.'

This was no doubt true, and in the same manner a boy may learn how to plane, so that he can plane pretty well, so long as the plane is in good order, and the wood is soft, and dry, and straight-grained, and everything goes well; but he cannot be considered a good planer unless he knows what to do when the wood is damp or cross-grained, and the plane won't cut, or gets choked up with shavings.

A young man might think that he was qualified to drive a stage on a route, from one town to another in a back country, because he had learned to manage four horses well on an ordinary road, and knew how to hold back in going down-hill, and to spare his horses going up-hill, and to judge correctly in turning out, in respect to how far he could go where it was sideling without danger of going over. But that would not be enough. That would be enough, it is true, to make him a good driver while all was going on well, but a good deal more than that is required to make it safe to entrust a long stage route to him. He must know how to act in difficulties and emergencies: as, for example, when a tire breaks or a wheel comes off in a solitary place on the road far away from any house; or if one of his horses should have a fit; or if in going through the woods he finds a great tree blown down across the track; or if an important part of harness breaks, and no help is near. To make a good driver it is required that a man should not only be able to drive well when everything is smooth and prosperous, but that he should also know how to act in unexpected and difficult emergencies.

Now it is, perhaps, most usual that when persons are learning any particular art, or the performance of any operation requiring skill, that they learn both the easy and the difficult things to-

gether; that is, they take them just as they happen to come: as, for instance, when a boy, in learning to split logs gets the wedge all imbedded in the wood, or one of the rings off his beetle, does not know what to do, his father teaches him at once what to do in such cases, and so he learns how to conduct the regular work, and how to get out of the difficulties at the same time. Indeed, this is usually the course pursued by teachers, while carrying their scholars through long division. They point out to the pupil what the nature of the difficulty is whenever they get into one, and show them on the spot how they are to get out of it. This is indeed often the best way. But Juno was so afraid that Hubert would get again perplexed and entangled, and so stopped in his progress, or, as she expressed it, that he would get off the track again, that she thought it would be best to reserve the difficulties for a separate part of her course. So she had directed Georgie only to let Hubert go on with the work as long as it went smoothly and well, and as soon as he made any mistakes and became involved in any difficulty, to take the pencil himself and carry the work on beyond the difficulty; and then, when the way was clear, to let Hubert take the pencil and go on again. She would teach him how to deal with the difficulties by-and-by, she said, taking up one kind of a difficulty at a time.

The first difficulty was when, after multiplying, it appears that the product obtained is larger than the number above it which was divided, so that the subtraction cannot be performed. Juno explained to Hubert that this was because the figure in the quotient was too large, and that to remedy the difficulty he must rub out that figure, make a new one smaller, and then multiply again.

She went on in this way, explaining one after another the various difficulties and entanglements which children usually get into in performing operations in long division when they are not fully familiar with all parts of the process. She took only one of these difficulties at a time, and when Hubert came to it in his work, taught him how to get out of it himself, while Georgie or she herself, when he came to any *other* difficulty, went over it for him. In this way, after a reasonable time, he had learned the process quite well, and in learning it had experienced nothing but satisfaction and pleasure.

I have explained thus fully the course which Juno pursued in raising Hubert out of his difficulties in arithmetic, and getting him well under way again, in hopes that if among the older boys and girls who may read this book, there are any who have younger brothers and sisters who are in substantially the same condition that Hubert was in—perplexed, discouraged, and unhappy—they may

try Juno's experiment upon them; at least so far as to attempt to help them out of their troubles, if not precisely in the same way, at least on the same principles. If they do make such an attempt and should succeed in it, I am sure that it will be a source of great satisfaction and pleasure to *them*, as well as of relief and comfort to the children whom they aid.

After Hubert had learned to do long division well, Juno gave him one example long enough to fill the whole slate, and when it was done, and Hubert had brought it to her, as he did, with a countenance expressive of great satisfaction, and she had looked at it and found it all right, she asked him how he would like to take the slate home, and show his work to his aunt, Mrs Wood.

'Your aunt will be much gratified,' Juno said, 'to see how well you are going on.'

But immediately on hearing this proposal Hubert's countenance fell.

'Wouldn't you like to do it?' asked Juno. 'Don't you think it would please her?'

Hubert shook his head, and said, 'I don't think anything would please her. She would look over the whole sum and be sure to find something that was not right, and that she could find fault with.'

'Very well,' said Juno, 'you can do just as you think best. I think you have done the work very

well, and that there is no occasion to find fault with it on any account.'

So Hubert went away with his slate and wiped out his sum as quick as he could with his sponge, for fear that Juno might alter her mind, and think that after all it was best for him to go and show his work to Mrs Wood.

I presume that Hubert was right in his idea of what his aunt would have said and thought about his work. She would have examined it very critically no doubt. Indeed, the better the work was done the more critically she would have examined it, and the more carefully she would have pointed out all the faults that she could find. She would have done this, moreover, from the best of motives; namely, from a desire to keep up Hubert's standard of accuracy and precision to the highest point, and to stimulate him to greater effort in pressing on toward perfection.

CHAPTER XVII.

MRS WOOD SURPRISED.

JUNO found that the principle of dividing the intellectual aliment which she had to administer to her pupils, into very small portions, proved so advantageous in practice by promoting so evidently the easy and rapid digestion of it, that she carried it into many things, and sometimes in quite a curious way. For example, in teaching the boys the multiplication-table—for she had the good sense to see that one of the things the most fundamental in importance in arithmetic, was that the pupil should be absolutely and perfectly familiar with the multiplication-table—she even divided the products in the line of nines into two parts, separating the first figure of the several products from the last, and taught them one at a time, thus:

She let them look over the line of nines in the table, and observe that the first figure of the product of nine into any factor, was one less than that factor; that is, that nine times *eight* make *seventy* something; nine times *seven*, *sixty* something, and

so with all the rest. The boys could perceive the existence of this law easily by the time that they came to the number three, which was *twenty* some thing, and Hubert was very much interested in it when it was pointed out to him. He thought it very curious, and after a little practice, he learned to repeat the line in this way, that is, mentioning only the first figure of the product, thus:

9 times 1 are 9;
9 times 2 are 18;
9 times 3 are 20 something;
9 times 4 are 30 something;
9 times 5 are 40 something;

and so on through the line.

Hubert did not perceive that the law came into operation until he came to the third figure, but the intelligent reader will perceive that it applies equally to the case of 9 times 1 and 9 times 2, though it is less obvious in respect to those factors than the other.

Hubert was much pleased that he could learn half, or *half learn*,—he did not know which to call it,—the line of nines so easily. And when afterward Juno questioned him at random, and he found that with a little practice he could answer readily, he was still more pleased. For instance, when she asked how much are 9 times 8, it was easy for him to see that it must be 70 something, and that 9 times 4 must be 30 something, and so on.

After Hubert understood this perfectly and could give promptly the first figure of the product of nine by any number, she showed him a curious way of determining what the second figure would be, by considering how much must be added to the first to make nine. For, as she made him observe, all the products of 9 by any single figure have this remarkable property, that when the two figures that compose it are added together they make 9. For example, 3 times 9 makes 27, and the two figures of 27 added together make 9. In the same manner 4 times 9 make 36, and 3 and 6 make 9, and so with all the rest.

It follows from these two properties of the products of 9 into any single figures, that in order to determine what any product is, you have only first to take a figure denoting a number 1 less than the multiplier for the first figure, and another, sufficient to make 9 *when added to the first*, for the second figure. Thus, for 9 times 7 we take 6 for the first figure, because it is one less than 7 and 3, because 3 added to 6 makes 9, for the second, and we get 63 for the answer.

It must be remembered, however, that all this is only useful as a means of interesting and amusing a boy while he is learning the table, and making it, perhaps, somewhat easier for him to learn it; or, at any rate, beguiling the tediousness of the work in some degree by presenting to his mind something

besides the wearisome toil of committing arbitrary and unmeaning numbers to memory. Of course, it would be impossible when multiplying numbers for the purpose of actual computation to go through, even mentally, with all the steps above described to find out what the product is in any case. We must know when we come to actual practice, that 7 times 9 are 63 at once, and without stopping to think an instant. So that to understand what has been explained above, about the products of 9 multiplied by single figures, is not to *know* that line in the table, but is only a method of beguiling a little the time and labour required for learning it.

Indeed, I am not certain that the plan which Juno thus adopted, would be the best way in all cases of teaching it, but it was an excellent way in Hubert's case. It led him to see that there were curious things connected with figures, and with the various ways of combining them, and was the commencement of the work of displacing from his mind the hatred of arithmetic which he had been accustomed to feel, and awakening in its stead something like an embryo interest in the work which it was plain might in time grow into actual love for it.

In a word, in the case of a boy who was off the track, this was an excellent way of helping to set him on it again.

When at length Hubert had learned to solve

the problems in long division, which Juno set for him on the slate, with some good degree of correctness and certainty, she allowed him to take his book of arithmetic and attempt to solve those which were given there. Of course, the first of those which were put down in the book were shorter and easier than many that he had already done. He was agreeably pleased to see how easily he could 'do these sums,' and became so much interested in the work that he wished to take the slate and arithmetic home, and do some of them there. Juno consented to this, so far as to allow him to try four of them at home. But he mustn't on any account attempt more than four.

So Hubert took his book and his slate home, and that afternoon he went up into his room and began his work upon the four examples given. He remained there at his work for half-an-hour. At length, his aunt, not hearing his voice about the house or yard, began to wonder where he was. She asked Maria, but Maria said she did not know where he was.

A few minutes afterward Mrs Wood called to Maria again, saying,—

'I wish you would look about and find Hubert. I don't think he would go away without asking my permission, and if he has not gone away he must be in some mischief. Children are almost always in mischief when they are still.'

Maria came back a few minutes afterward, and said that Herbert was up in his room ciphering.

'Ciphering!' repeated Mrs Wood, in a tone expressive of surprise and incredulity. 'That's nonsense! I hope you were not so simple as to suppose that he really was ciphering.'

'He *seemed* to be ciphering,' said Maria. 'He had his slate and his arithmetic book.'

Mrs Wood shook her head. 'It is only some artfulness of his,' said she. 'He is in some mischief you may depend, and his ciphering is only a pretence,—something to take up when he hears anybody coming. He has got some book that he is reading by stealth, I have no doubt, and when he heard you coming up-stairs he hid it away. Or he may have secretly procured something to eat which he ought not to have. Go up again and see if you cannot find out the truth, and if you cannot, bring Hubert to me.'

So Maria went away, and in a few minutes returned bringing Hubert with her.

'Hubert, my dear!' said Mrs Wood, 'what are you doing up in your room?'

'I'm doing some sums,' said Hubert.

'Ah, Hubert!' said Mrs Wood, 'I'm afraid you are trying to deceive me. It is a very wicked thing to practise deception. It cannot be possible that you are at work upon arithmetic, in your room, for

pleasure. Think how many times you have told me that you hated arithmetic.'

'Not Juno's kind,' said Hubert.

'Juno's kind!' repeated his aunt. 'What do you mean by Juno's kind? Let me go and see.'

So she laid down her work and went up to Hubert's room, confidently expecting to find some forbidden book, or something or other that was contraband, hidden in some drawer, or other place of concealment. She made a thorough search,—looked into all the drawers, and even under the pillow of the bed,—but nothing was to be found. At last she looked at the slate, and found to her surprise one side full and the other half full of 'sums,' all evidently in Hubert's hand; and the last one was half finished.

She looked at this work a few minutes in silence, running her eye along the line as if she were trying to find some mistakes.

'Did Juno say you must do this work?' she asked.

'No, aunt,' he said. 'I am doing them myself. I like to do it.'

'You don't make very good sixes,' said his aunt, still looking at the work upon the slate, and apparently not noticing Hubert's reply,—'nor sevens. You must try to make all your figures carefully and well. It is very important to make

your figures correctly from the first, for if you make them badly, you get into bad habits which you afterward have all to unlearn.'

That evening Mrs Wood told her husband, Hubert's uncle, that she really believed that Juno had succeeded in making Hubert like arithmetic.

'I should not have believed it possible,' said she. 'There was nothing that he seemed to hate so intensely. She has almost worked a miracle. Indeed, if she had lived two hundred years ago, and were not so young and good-looking, I don't know but that she would have been in danger of being burnt for a witch.'

She laughed at this joke, but then in a moment renewed her serious air, and added,

'However, I would not tell her so for the world. It would make her vain. But I think she is really quite a nice person, and deserves encouragement. I intend to go and see her school some day. I shall be able to give her some advice about managing young persons, which will be of service to her.'

CHAPTER XVIII.

JUNO'S IDEAS.

DURING the time that Hubert had thus been coming every day to Juno's school, and had been making so good a beginning in arithmetic, a fortnight had passed away. At first Hubert only remained in the school during the half-hour for arithmetic, but he soon began to stay a little longer, in order to look over Georgie while at work on his journal. At length, he one day said to Juno that he wished that he could have a journal too.

Juno was pleased to hear this, but she was not prepared to reply, as she did not feel authorized to make any addition to the amount of instruction that she was giving to Hubert, without being specially authorized to do so. So she said that she would think about it, and speak with him the next day.

Accordingly, she stated the case to Georgie's mother. She said to her that Hubert was beginning to become interested in study, and that, if it was thought best, she was perfectly willing to have him

come every day to the house, and spend the whole two hours which were devoted to Georgie's studies, and thus go on in company with Georgie as his fellow-student. Indeed, in some things she said he could be his class-mate. Georgie's mother said that she would consider the subject, and speak to Mrs Wood about it.

The result of the consultations that ensued was that it was decided that Hubert should become one of Juno's regular scholars, and accordingly when Hubert came to school on the following day, he found that Juno had provided a book for a journal for him, and a table with a drawer in it for his books and materials, so that he might begin at once as a regular scholar.

Hubert was greatly interested in commencing his journal. As has already been said, Juno's plan was to admit a great variety of articles in these books. Anything, in fact, was admissible, provided it was interesting, amusing. or instructive, and also *short*. This last was essential, as it was very important while a boy's handwriting was in process of being formed, that he should do no hasty or careless work; and if a boy undertakes to transcribe a long article of any kind, he is very likely to become weary of it before it is finished, and so grow careless in his writing in his haste to get it done.

Among other things that were often put into the

journals were texts of Scripture. And as Juno often gave the boys facts in natural history, or science, or philosophy, and always in such cases took care to explain them fully before the boys copied them into their books, it was very natural that she should also explain the texts in the same manner.

She had thus two reasons for giving the boys texts to write in their books; for not only did the writing of them slowly and carefully tend to impress the precepts and principles on their minds, but it also gave her excellent opportunities of giving them religious instruction of her own, in the explanations which she made of them. The boys listened much more willingly, and were much more ready to receive what she said, when the instructions which she gave them were in the form of explanations of the texts which they were to write in their journals, than if she had offered them as direct personal exhortations to them.

Accordingly, when Hubert asked Juno what she thought it would be best for him to put first into his journal, she recommended a text as the best thing to begin with.

'It will be a kind of motto for you,' she said. 'They often put mottoes in the beginning of books.'

Hubert was pleased with this idea, if Juno

would choose him a text. So she chose the song of the angels which the shepherds heard, announcing the coming of the Saviour:

'Glory to God in the highest; on earth peace and goodwill to man.'

She opened to the account in Luke, and read the passage there to the boys in such a manner, as to bring vividly before their minds the scene as it is there described; and then explained to Hubert what an excellent motto he had for his book, one which comprised in a few words a complete summary of religious duty.

'There are not a great many words in it,' said Juno, 'and it will not take you long to write it; but in those few words the angels expressed the whole duty which our Saviour came into the world to teach to men. They were to give glory to God by doing everything that He should command them, and by receiving thankfully every good, and submitting patiently to every evil, that He should send. They were to be just and honest in all their dealings with each other, so as to live in peace without any quarrelling; and they were to show goodwill and kindness to all their fellow-creatures, so as to give pleasure to everybody as far as possible, instead of pain. What a happy world it would be if all the people in it would act according to your motto!'

This was, in fact, the whole substance of Christian duty according to Juno's ideas; namely, to have a heart of entire submission to the will of God, and cordial good will and kind feeling toward every human being. To attain to this state she was well aware required a great change from the natural condition of the heart, for she knew very well that if a hundred boys and girls that had never received any moral or religious instruction, were to be put together into a *paradise* even, and nothing at all were done for them, except to place at hand plenty of food and clothing for them to take, and nothing to restrain their selfish and passionate propensities except what their own unassisted natures furnished, they would soon get involved in quarrels and disputes which would lead, as they grew older and stronger, to the most desperate and terrible affrays.

And even under the ordinary circumstances in which children are brought up in a Christian land, she knew that just so far as they were neglected and left to the influence and control of their natural propensities they became wilful, selfish, and passionate, and much more eager to secure good for themselves than to promote the comfort and happiness of others. Thus she knew that a change was necessary to bring the child into the kingdom of Christ, as described in Hubert's motto; and this change was very properly called a *change of heart.*

She knew, too, that this change was effected by the power of God, and could be effected in no other way. But then she knew, too, that the change in the condition of a seed put into the ground, when it began to vegetate, was produced by the power of God, and she had no clear idea of any difference in the nature or degree of her dependence on Divine power, in her efforts to change a child's heart, and to make seeds grow in her garden.

Indeed, she did not try much to find any difference. All the religious books which she read taught her that the Spirit of God in changing the heart, worked through the medium of *means adapted to the end,* just as the Divine power, in another form, in causing plants to grow in a garden, acted always in conformity with the means adapted to the end that were employed by the gardener. So she thought that all she had to do in promoting the change of heart in children, was to use the means which she judged best adapted to the end, looking to God for His blessing on her efforts, just as the farmer should look to God for His blessing and His help in the growing of his seed.

It seemed to her, as indeed it must to everybody who looks at the subject in its true light, that for her to use injudicious or inopportune means, and then, in her heart, throw off the responsibility upon God to make them effectual, was as unreasonable as for a farmer to put his seed in, any how, into the

ground, and then depend on the power of God to make it come up right.

Selfish, passionate, and quarrelsome as children often were, Juno had no more doubt that there was in them something that made it possible for them to be formed to habits of gentleness, kindness, and love, than she had that there was something in the seed which made it possible for it to sprout and grow, though the intervention of Divine power she felt was equally necessary in the two cases. In some of the books that she read, this possibility was called a *capacity* for right feeling and action, which the Divine power was to call into exercise; in others it was called a *germ*, which by Divine power was to be vivified into life. She did not know, however, whether it was a capacity or a germ. In fact, I doubt if she knew what the difference was between a capacity and a germ, in relation to the human heart, or whether there was any difference. All that she thought of was that her duty was plain; namely, to do all she could to awaken right feelings and instil right principles in the hearts of children, by such means as *seemed best to her*, relying, however, all the time, as she did in the case of the seeds planted in her garden, on Divine goodness and power for her ultimate success. And, in order that her means should be adapted to the end, it was her duty to study the characteristics of children, and exercise all her

ingenuity and tact in learning how to gain an influence over them, and to lead them in the way in which she wished them to go; not merely to *do* as she wished them to do, but to *feel* as they ought to feel.

Hubert took great pains in writing his motto in his journal. He began about the middle of the page, having put the word JOURNAL above, where the title comes in the beginning of a book. He also put, under the word journal, the date, recording thus the day and year when his journal was commenced. He wrote the word, MOTTO, too, over the text, in the form of a caption.

Juno had an opportunity the very next day to give Hubert a practical lesson on the third part of the motto; namely, that which relates to the spirit of good will to man. But this will be related in the next chapter.

CHAPTER XIX.

THE NEW WHEEL.

WHILE Hubert and Georgie were talking together, a few minutes before the time for commencing their studies arrived,—Juno sitting as usual at her work, in a large bay window which there was in the room,—Hubert said to Georgie,—

'When I was coming along the road this morning, that little imp of a Pompling came out and threw stones at me.'

'What did you do?' asked Georgie.

'Oh, I chased him into his yard,' said Hubert.

'Did he hit you with a stone?' asked Georgie.

'No,' replied Hubert, 'I would have taken his skin off if he had hit me. But he would not have dared to do such a thing.'

'Then,' said Juno, 'you don't think he really meant to hit you, I suppose?'

'No,' replied Hubert. 'He only did it to make believe. But he is an ugly little fellow.'

Juno said no more. If she had thought that

the main thing to be done was to prevent Hubert from speaking in that manner of such a boy as Pompling, she would have reproved him at once for saying what he did; but that was not the main thing. That would be something, it is true. But the main thing was to change his feelings toward the child. She did not at once decide what she could do to make the change in his feelings, but she was satisfied that reproving him for what he said would not be the best way.

So she said nothing at the time, but allowed the subject to drop.

A few days after this Hubert and Georgie asked Juno to go up into their shop to see the bench which they had made. She accordingly went with them. The bench was, indeed, a very good one, entirely sufficient for their purpose, although in making it they had no tools except a saw, a hammer, and nails. It is true, that the boards of which they had made it were already planed at the mill, and as for the legs they did not need planing. Juno thought that the bench was a very good bench, indeed.

'It proves,' said Georgie, 'that we know how to use a saw, and so now we are entitled to another tool.'

'Yes,' said Juno, 'you are. And what tool will you have for your next one?'

'What *would* you have?' asked Georgie, turning to Hubert.

'I hardly know yet,' said Hubert. 'It depends on what we are going to make next.'

'I'll tell you an excellent thing to make,' said Juno. 'I was at Pompling's the other day, and he was drawing his little sister about on a kind of wagon, but one of the wheels was gone. If you could only make him a new wheel, it would please the little fellow very much.'

Hubert looked rather serious on hearing this suggestion.

'It is kind in him,' continued Juno, 'to draw his little sister about, and it would please him so much to have a new wheel.'

'I suppose,' continued Juno, after a moment's pause, 'that he has not any money to pay a carpenter to make him a new wheel. Some of the boys might, perhaps, do it for him if they were good-natured,—but it is not everybody that knows how to do such a thing.'

'I'll make him a wheel,' said Hubert,—suddenly looking up. 'At least, I'll try.'

'Only,'—he added, after a moment's reflection, 'we haven't got the tools I should need.'

'What tools would you need?' asked Juno.

'We should need first a key-hole saw to saw the wheel out with,' said Hubert, 'and a vice to

our bench to hold the board while we are sawing it, and a small auger to bore the hole in the middle, —and then,' he added, 'I ought to have a pair of compasses to mark out the round.'

After some further reflection, however, Hubert concluded that it might be possible to make the wheel without all those things. He might describe the circle, he said, with Georgie's dividers; for Georgie had a pair of dividers in his desk. Then he could saw off corners on every side, with a common saw, and in that way make the piece nearly round, and *then* finish it with a chisel. As for the hole, he thought that he could burn that out with a hot iron,—provided he could find a piece of iron that would do.

'Only,' said he, 'I must know exactly the *size* of the wheel.'

Juno said that she could give him the size of the wheel, for when she saw that one of Pompling's wheels was gone, she hoped to find some way of replacing it, and so she took the measure of the mate of it. She added, moreover, that Hubert did her a great favour by being so willing to undertake the work.

Hubert succeeded very well, on the whole, in making his wheel. He described a circle of the right size, near the end of a narrow strip of planed board—the width of the strip being about equal to the diameter of the wheel. Then he sawed off the

piece thus marked out, and afterward sawed off the corners, all around, close to the circle which he had drawn. There were still, however, a number of angles left,—where the wood projected beyond the line. These he afterward trimmed off with his chisel, which in the mean time had been bought for their next tool, and which the boys had ground and sharpened.

Hubert cut these projecting angles off by placing his wheel upon the bench,—with a small piece of board under it to prevent marring the wood of the bench with the chisel,—and then crowding the chisel hard down into the wood, by pressing upon it from above.

The work of burning out the hole in the centre, caused him some trouble, but he at length succeeded in accomplishing it. The boys found an iron rod, among the old iron in the barn, which they thought would answer the purpose for a burner very well; and Georgie's idea was that they could heat the iron in the kitchen fire. But Hubert said that this would not do, for the smoke from the burning wood would fill the kitchen and make an unpleasant smell. Accordingly the boys went out to a piece of pasture ground which was not far from the house, at a place where there were plenty of sticks lying around, and there they built a fire in which they could heat their iron and burn out the hole.

By this plan, the boys not only succeeded well in accomplishing their object in respect to the work, but they also amused themselves a great deal in playing about their fire.

When the wheel was finished the boys took it to Juno, to see whether it was right. She said it was a very good wheel, and on applying her measure to it,—which was a slender strip of paper, with a mark near one end of it denoting the breadth of the hole,—she found it to be of the right size, both in respect to the wheel and to the hole.

Hubert had been intending to leave the wheel with Juno, in order that she might carry it to Pompling. But Juno said that it would be much better for Hubert to take it there himself, on his way home.

'It is you,' she said, 'that have taken all the trouble to make the wheel, and you must see how pleased Pompling will look, when he gets it.'

'But suppose when he sees you coming,' said Georgie, 'and does not know that you are bringing him a wheel, he begins to throw stones at you.'

'Then,' said Hubert, throwing himself into a threatening attitude, and looking very fierce,—'I'll shy the wheel at his head.'

'Oh, no!' said Juno. 'I would not do that. Walk right on, without paying any attention to his stones, and tell him you have got a wheel for

his wagon, and you will see how ashamed he will look when he sees you fitting it on.'

'There now!' exclaimed Hubert suddenly, 'I forgot about the linch-pin. There must be a linch-pin. What kind of linch-pins were they, in his wagon? Were they nails, or what?'

'I don't know,' said Juno. 'I did not think anything about the linch-pins.'

'I'll bet you a big apple,' said Hubert, turning to Georgie, 'that they were wooden pegs, and that one of them got weak and broke, and that's the way the wheel was lost.'

'Or else,' he added, after a moment's thought, 'he had good linch-pins, and lost one of them, and so put in some little stick or other, and that broke, and the wheel came off, and got lost in *that* way. He ought to have pieces of good stout iron-wire and *washers*.'

'You can show him,' said Juno, 'exactly how he ought to do it.'

Hubert concluded to adopt Juno's proposal that he should take the wheel himself to Pompling on his way home. When he arrived near the house he saw Pompling on the gate. He was resting his feet upon the lower bar, and with his arms folded was leaning upon the upper one. He had been in this position some time—amusing himself in observing the people who passed by.

When he saw Hubert coming he jumped off

the gate, and retreated a few steps, as if he expected an attack. Hubert held up the wheel, and said,—

'See, I've got a wheel for your wagon.'

Pompling seemed to be re-assured by this announcement, and came forward again. He opened the gate a little way, and looked out.

'Oh, yes,' said he. 'Juno made it for me.'

'No,' replied Hubert. 'Juno could not make such a thing.'

'Then she got it made for me,' said Pompling.

'No,' replied Hubert, 'I made it myself. Juno told me about it, but Georgie and I made the wheel for you.'

Pompling stared at Hubert, and seemed bewildered. He did not appear to know what to make of the affair. In a moment, however, he turned and ran up the path and disappeared round the corner of the house. He very soon returned, pulling his wagon after him—one corner of the board as usual dragging on the ground.

Hubert put the wheel upon the axle-tree, and then put in, for a linch-pin, a short piece of stout iron-wire, which he brought for the purpose, having first put on a washer which he had cut out from the leather of an old shoe, and brought with him. The washer, of course, came between the linch-pin and the wheel.

Pompling all the while looked on, motionless and speechless. When at length the work was done, and the wagon was ready, and Hubert put the pole by which it was to be drawn into his hands, and he found, on drawing it along a little way, that the new wheel would turn, and that his wagon was complete, he seemed greatly delighted, and without saying a word, ran off with it, and disappeared behind the corner.

Hubert waited a few minutes to see whether he would come back. But he did not come. He had gone into the house to show his mended wagon to his mother, and ask her to get the baby ready to go and take a ride upon it,—and this his mother was doing, while Pompling was waiting. He had forgotten all about Hubert, whom he had left in the yard. After waiting a reasonable time, Hubert gave up expecting his return, and went home, saying, as he walked, somewhat disappointed, away, 'He does not even thank me.'

The next day Juno asked him whether he gave Pompling his wheel. He said he did, and that he fitted it on for him.

'And what did he say?' asked Juno.

'He did not say anything,' replied Hubert.

'Not anything?' repeated Juno.

'Not a single word,' said Hubert. 'He ran off as fast as he could go.'

'What, without his wagon?' asked Juno.

'Oh, no,' replied Hubert. 'He took his wagon with him.'

Juno laughed.

'He ought at least to have thanked you,' said Juno. 'But he is such a little fellow, we must not expect much from him. Besides, we must not do good for the sake of the thanks we get for it,—but for the sake of having *the good done.* You have made him a wheel, and he will be very happy no doubt in drawing his little sister about on his wagon, now that it is all right; and she will be happy, too, in finding that it goes so much better, and that she does not have to hold on so hard to the board with her little hands; and their mother will be happy to see her children pleased, and to find that now they have got a good wagon, they will play with it more, and she will have more time to do her work. So you see, you have made a great deal of happiness, and that is the main thing. It is of very little consequence whether you get thanks for it or not.'

'I think he might, at least, have been civil enough to thank me,' said Hubert.

'Certainly,' said Juno. 'He ought to have done it. But that's the way with doing good. Half the time we don't get any credit for it, and if we do good for the sake of the thanks we are to get, we shall soon grow discouraged, and give it up.

But if we do good for the sake of the happiness we occasion, then we shall be satisfied without the thanks, and go on. You have succeeded in producing a great deal of happiness by making that wheel for Pompling: and if I were you, I would go on and make him some washers for his other wheels.'

Hubert paused a moment, and then said,—

'Well, I will. I don't care about the thanks, after all.'

He, however, in the end received the thanks, although he said he did not care about them. For, a few days afterward he went with the three other washers, to complete the set, and put them on the wheels; and then he put the pole into Pompling's hands, in order that he might see how much more smoothly and easily the wheels moved; and Pompling after moving the wagon to and fro a few times to try it, ran off with it around the corner, just as he had done before. Hubert then passed out through the gate and went down the road toward home. He had not gone very far, however, before he heard a voice behind calling out to him,—

'Halloo! You fellow! What made my wheel!'

Hubert turned round, and saw Pompling perched on the gate holding on with his two hands, and calling out aloud. 'I'm much obliged to you! I thank you! I'm very much obliged to you!'

He kept calling out in this way for some time.

When Hubert related this circumstance to Juno, she said it reminded her of one of her favourite texts.

'Be not weary in well doing, for in due season you shall reap if you faint not.'

CHAPTER XX.

WILLIAM DARRICUTT.

THE summer passed away and the autumn came on. Hubert continued to be Juno's pupil, with Georgie, and made great progress in his studies. He was now completely on the track, in fact, and was going on smoothly and well.

One day after the boys had finished their studies and were playing about the grounds, they found some corn in the garden, which Georgie said was big enough to roast, and he proposed to Hubert that they should go into the woods that afternoon and build a fire and roast some of it. Hubert liked this proposal very much, and Georgie went in to see Juno about it and to obtain permission.

What Georgie called the woods, was really a piece of pasture-ground in the rear of his father's house, where the boys often went to play. In some places the ground was rocky and rough, and in others there were clumps of trees and bushes, enough to justify calling the place the woods.

Georgie and Hubert proposed their plan to Juno. She made no objection. On the contrary, she proposed that they should take some apples and potatoes, too, as well as corn, so as to have a variety in their cooking.

Georgie said that he wished that Juno could go, too, but she said she could not leave her work that afternoon.

'But I think that *you* can go,' she said, 'though I would rather that you would ask your mother, as there are some dangers.'

Georgie wished to know what the dangers were, but Juno said that since she did not think they were serious enough to prevent their going, it seemed hardly worth while to talk about them. But the boys both wished to know what danger she meant.

'One is,' said Juno, 'that your potatoes will get burned instead of roasted, for want of ashes to bury them up in.'

'We can get some sand,' said Hubert.

'Perhaps you won't think of that,' said Juno; 'or, perhaps you can't find any sand. I never knew boys and girls to attempt to roast potatoes in the woods without getting them burnt to a coal.'

'Never mind that,' said Georgie; 'what are the other dangers?'

'I don't suppose,' said Juno, speaking hesitatingly, and looking very thoughtful and serious,

'that there is any particular danger of bears or wolves in such woods as these.'

'Nonsense, Juno!' said Georgie. 'You know there is not any such thing.'

'Well, there is one danger at least,' said Juno, 'that is very serious. Boys, when they build fires in the woods, generally lay their jackets down near them in the sun, where they get quite warm, and then a spark snaps out upon them, or else the fire creeps along to them through the grass, while they themselves are off after more fuel; and so when they come back they find their jackets smoking with a smouldering fire, and great holes burnt in them. Once I knew a boy who, when he came to take up his jacket which he had laid down near his fire, found nothing left of it but a mass of blackened and smoking rags.'

'We'll look out for that,' said Georgie, turning to Hubert. 'We'll hang our jackets up in the shade on the branch of a tree, a good way from the fire.'

'Perhaps you can,' said Juno. 'You know I said the dangers were not serious enough to prevent your going. So you can ask your mother, and see what she says. Only she is engaged with company now.'

'Who is it?' asked Georgie.

'It is a Mr Darricutt, I believe.'

'Oh! William Darricutt,' said Georgie. 'I don't mind him. Let's go in and ask mother.'

So Georgie went into the parlour to ask his mother. Hubert followed him.

After first paying his respects properly to Mr Darricutt, who was a student at home during a vacation, he stated his case to his mother. He said that he and Hubert had a plan of going into the woods that afternoon to build a fire and roast some corn and other things.

'I have no objection to your going into the woods,' said his mother, 'but I am not so sure about the fire. What do you think about it, William?'

So saying, she turned to Mr Darricutt.

'The only danger,' said William, 'would be that the fire might get away from them. The grass is pretty dry now, and the fire would run. It might get into the woods and bushes, and possibly do some damage.'

There are two seasons in the year when there is danger in making fires in the fields, especially near any woods—in the spring and in the fall. There is seldom any danger in the summer or in the winter.

The reason is that in the summer the ground is generally well covered with green grass, which will not burn, and in winter with ice and snow. But in the autumn, when the herbage has ripened and become dry, the fire, when it gets caught in it, sometimes runs along through it very fast, espe-

cially when there is a breeze. The surface of the ground, too, with all the ripened grass and fallen leaves that lie upon it, become heated by the sun, so that everything combustible burns all the more readily and rapidly.

One would not suppose that there would be any danger in the spring, when the ice and snow have just melted from the ground, and when nothing has yet begun to grow. But it is this very fact that nothing fresh and green has yet appeared that constitutes the danger. The ground is covered with the dead vegetation of the preceding year, and this is so light and thin that a few days of warm sun make it extremely inflammable. A spark will sometimes kindle it, and the flames, when fanned by a breeze, spread, sometimes in a constantly-expanding circle, in a very alarming manner.

Nor is it easy to stop such a fire by any ordinary means, for it spreads over so great a surface that you cannot get water enough to put it out; and if you had water enough you could not do much with it, for while you were pouring it on in one place, the fire would be running on fiercely and furiously in another. The only way is to *whip it out* with branches of evergreen trees, at the margin all around where it is advancing, and so stop its progress, and then wait to let it take its own time to burn itself out on the ground which it has already covered.

Fires sometimes catch and spread in this way or

the great grass prairies in the West, and produce the most extended conflagrations. They are sometimes set purposely by the Indians, and sometimes they take accidentally from some camp fire, or from the burning wad of a hunter's gun, or even from the spark of a locomotive.

They very often occur, too, in the hilly and forest land of the Eastern States, and when they get into the woods it is almost impossible to stop them. The fallen trunks and dead branches of the trees, and the old decayed roots and beds of moss, which sometimes get dried to a considerable depth form masses of fuel which kindle quick and burn long and furiously; and the wind, if there is a wind, drives the sparks and flaming fragments of decayed wood and bark onward through the thickets; so that while the men are trying to extinguish the fire at one point, it is perhaps rekindling itself in many others.

Such fires sometimes do incalculable damage, and this in many ways. So long as they merely run over grass-land they do no harm. They burn only the dried grass, and the ashes of this falls down and fertilizes the ground. But when they get into the woods they kill all the young and growing trees by burning the bark off round the stem, and so girdling them.

If they come to evergreen trees the flame often catches in the top, and sets all the foliage in a

blaze, forming a most magnificent spectacle. For the foliage of evergreen trees contains a resinous substance which makes them inflammable even while they are green.

Then, sometimes, they reach the fences by which the great pastures are enclosed, which fences are often, especially in the woods, made of brush, and these, of course, form lines of fire to conduct the conflagration to the farmer's buildings. It is awful, in the dead of night, to have a fire coming thus toward the home of a family secluded in an opening in the woods, the air filled with smoke and sparks, and illumined with a lurid light, while there is no possibility of arresting its progress, and sometimes with no opening left for the inmates to escape with their lives.

There was, it was true, no danger of such a conflagration as this in the pasture-ground where the boys proposed building their fire. But the thought of such conflagrations, and of the various minor disasters which might result from a fire escaping control in the open ground, led Mr Darricutt to hesitate in answering the question which had been put to him.

The boys began to feel a little uneasy when they found that Mr Darricutt was disposed to speak so doubtfully about their plan.

'Mother,' said Georgie, 'there is no danger at all. The fire could not possibly get away from us.'

He spoke this in a very decided tone.

'Ah!' said his mother. 'That makes me feel more afraid than ever to let you go.'

'I don't wonder at that,' said Mr Darricutt. 'When boys are aware that there is danger, they are likely to be careful. When they think there is no danger, then they are apt to be careless; and still more so when they are so *sure* that there is no danger.

'But I'll tell you what we will do,' continued Mr Darricutt, turning to Georgie's mother, after a moment's pause, 'I'll go with the boys, if you will trust them to my care.'

'Good!' said Georgie, clapping his hands. 'That will be just the thing. Then you'll feel perfectly safe, mother.'

His mother said she was very unwilling to put Mr Darricutt to that trouble. But he said that it would be no trouble at all. He would *like* to go, he said. He was entirely at leisure that afternoon, and it would be a pleasure to him to go into the pasture and make a fire, as he used to in old times when he was a boy.

So the plan was all arranged. The boys and Mr Darricutt were to meet at a certain red gate at the end of the lane, at a quarter past two. And the affair being thus settled, the boys went out to procure the corn, potatoes, and apples which they were going to roast at their fire.

CHAPTER XXI.

STRONG GOVERNMENT.

THE boys were at the red gate, which was the place appointed for the rendezvous, a quarter of an hour before the time. They had their stores of provisions in a basket. Georgie had charge of the basket, while Hubert carried a hatchet. It was a rule with him never to go into the woods without a hatchet. In this case the hatchet was specially important, inasmuch as some instrument of the kind was almost absolutely necessary as a means of preparing the fuel for the fire.

Perhaps, however, I ought not to say absolutely necessary, since it is possible to build a fire with very long sticks by burning them in two, as we shall see presently that the boys did on this occasion.

Mr Darricutt came promptly at the appointed time. He had a book in his hand. The boys asked him if he was going to read.

'That depends,' said he, 'upon how amusing I find your fire.'

'Is it a story-book that you have got?' asked Hubert.

'No,' replied Mr Darricutt; 'it is a book about chemistry.'

'I should think it would be a great deal better to bring a story-book, or something entertaining, when you come out into the woods for play,' said Georgie.

'No,' said Mr Darricutt. 'Because I'm liable to a great many interruptions at such times, and a tale of any kind is the worst book you can have when you are liable to many interruptions, on account of there being such a close connection in the parts. Being interrupted is a greater disturbance to the mind when there is a very close and continued connection in what you are reading.'

'Isn't there a connection in your chemistry?' asked Georgie,

'Yes,' replied Mr Darricutt, 'but the connection is not so close. I can read about one thing and then stop, and afterward read about another.'

'What is chemistry about, any how?' asked Hubert.

'Ah!' rejoined Mr Darricutt. 'That would be very hard for me to explain to you. Perhaps I may tell you something about it by and by. But now I must tell you what my plan is to prevent the danger of a fire spreading in the grass. It is to burn the ground where you are going to have your

fire, all over in the first place. I am not going to do anything about it myself, but only to direct you. If you obey my orders exactly and implicitly, we shall get along very well.'

'I'll obey you *exactly*,' said Georgie, 'but as to *implicitly*, I don't know what that means.'

'It means without any hesitation or demurring,' replied Mr Darricutt.

'But I don't know what demurring means,' said Georgie.

'Nor I either,' said Hubert.

'It means stopping to make objections or to argue the case,' replied Mr Darricutt. 'As soon as we get to the ground, you may first choose the place where you would like to have your fire. Perhaps I shall see some reason why the place will not do. If so I shall say no, but without giving any reasons. Then you will have to look about for another place.

'Or would you rather I would stop and give the reasons,' he added, 'and so waste a quarter of an hour talking about it.'

'No,' said Hubert, speaking in an undertone to Georgie.

'No,' repeated Georgie, speaking aloud.

Georgie knew very well from past experience that William Darricutt would not object to their choice of a place, unless he had good reasons for it; and that if they were to talk about it, no matter

how long, it would make no difference in his decision. So he was very ready to adopt Hubert's idea of dispensing with all discussion.

By this time the party had reached the pasture. They walked on for some time, following a narrow but pretty path which had been made by the cows, until they came to the part of the ground where the boys intended to have their fire. It was a wild place, *encumbered*, as some persons might say, though the boys would have said, made picturesque and beautiful, by rocks and thickets.

The boys began at once to look about for a place to build a fire. They at length chose the surface of a flat rock just on the margin of a dense thicket. The boys thought that this would be a very good place for their fire. The surface of the rock was flat and very near the level of the ground, and would make, as they thought, an excellent hearth for them. They thought, moreover, that it would be a very safe place, as the rock was so wide on every side that the fire would not come near the grass.

In the mean time Mr Darricutt had turned to one side and had found an excellent seat for himself on a block of stone in a shady place. The stone was near a precipice of rock which rose sloping behind it, and formed a back for the seat, which made it very comfortable.

As Mr Darricutt took his seat upon the stone he opened his book and said,—

'Now I'm going to read. You may look about and choose your place. If I approve of it then you can go ahead. If not, you will have to look about you and try again.'

Mr Darricutt said this very good-naturedly and quietly, but still in a very decided manner, as if it was perfectly understood between them that his will was to be obeyed without any hesitation or debate.

Hubert and Georgie did not dislike this authoritative manner assumed by Mr Darricutt at all. Indeed, they rather liked it. They felt somewhat as if they were soldiers under the command of a good general.

It was only a moment after this that the boys, in looking about the ground for a place for their fire, fell upon the flat stone above described, and decided in their own minds, as has already been said, that that would be just the place for them. So Georgie called out to Mr Darricutt,—

'William!' said he, 'look! Here's the place.'

Georgie had been acquainted with Mr Darricutt for many years, and had formed the habit of calling him William when he was much younger, though now that he had grown to be twenty-three or four years of age, and was, moreover, a student in a polytechnic institution, after having graduated at college, he was fully entitled to be addressed as a man.

Mr Darricutt raised his eyes from his book,

looked at the place, paused long enough to survey the surroundings, and then shook his head.

'He says no,' said Hubert to Georgie in an under-tone, and seeming surprised.

'Why not?' asked Georgie, speaking aloud to Mr Darricutt. 'We couldn't possibly have a better place.'

'Demurring,' said Mr Darricutt quietly.

He then resumed his reading, just as if the boys were not there.

'It's of no use,' said Georgie; 'we shall have to find another place.'

So, after laying their basket of provisions down upon the flat rock, they began to look about in the neighbourhood for another place for their fire.

CHAPTER XXII.

ARRANGEMENTS.

GEORGIE at length discovered a place under the shelter of some huge rocks which he was very much pleased with.

'This will do exactly,' said Georgie. 'In fact, it is a better place than the other was, for there are nice seats for us on the rocks all about.'

But Hubert shook his head.

'No,' said he, 'this won't do at all,—there is so much dried grass and weeds all about here. The ground is all covered with it.'

This was true. The precipice of rock did, indeed, shut in the place behind, so as to prevent all danger of the spread of fire in that direction, but in front, and on the two sides, there was a great quantity of decayed and dried herbage covering the ground for a considerable distance.

'If a spark should catch in there,' said Hubert, pointing down, 'it would run like wild-fire. He'll say no to this place, as sure as you're alive.'

'Well,' rejoined Georgie, 'it will do no harm to ask him at any rate.'

So he called out to Mr Darricutt, and pointed to the place against the rocks where they proposed to make the fire.

Mr Darricutt looked at it for a moment and then said, that he would come and see.

So he rose from his seat, laid his book down upon it, and walked toward the spot where Hubert and Georgie were standing. He first looked at the place where the fire was to be made, and then surveyed all the surrounding ground,—Hubert and Georgie standing by all the time in silence and suspense, both confidently expecting an unfavourable decision. They were much surprised to hear Mr Darricutt announce his conclusion at last by saying,—

'Yes; this will do very well.'

'Why, Mr Darricutt!' said Hubert. 'There is a great deal more dead grass and leaves for the fire to run in about this place, than there was about the other.'

'Demurring,' said Georgie.

'No,' rejoined Mr Darricutt. 'That is not demurring. Demurring is making an objection as an excuse for not obeying, or as a reason for changing the decision. But Hubert does not state his objection to have the decision changed, I suppose.'

'Oh, no,' said Hubert. 'We like this place a

great deal better than the other, but we thought we could not possibly have it.'

'So he states the objection to it from curiosity,' said Mr Darricutt, 'and for the sake of information, which is all right,—and not at all as an argument or an excuse.'

'The truth is,' continued Mr Darricutt, 'the other place was dangerous, on account of its being so near the thicket, that we could not safely burn the ground over all around it, for you can't whip out a fire in the woods as you can in the open ground. And now the first thing is to get your fire-whips. I'll give you all the directions and then will go back to my reading.'

Mr Darricutt then gave his orders as follows: The boys were to go about among the thickets till they found, on the margin of one of them, a fir, or hemlock, or pine, with branches thick with foliage growing within reach from the ground, and were to cut off six such branches with the hatchet. When they had procured these branches, which Mr Darricutt called the fire-whips, they were to bring them to the place where the fire was to be built.

'To the *camp*,' said Georgie, 'we are going to call it our camp.'

'Yes, to the camp,' said Mr Darricutt. 'Lay two of them down upon the rock, in a safe place, and keep the other four with you. Two apiece for

each. Then you must strike a match and set fire to the grass to leeward.'

'To leeward?' repeated Georgie. Georgie was not very well acquainted with nautical terms, and did not exactly know what the phrase to leeward meant, as applied to a piece of ground in a pasture, where a fire was going to be built.

'That means,' said Mr Darricutt, 'the side *toward* which the wind blows. They call it at sea to leeward. The side *from* which the wind blows is the windward side. You must walk six paces to leeward from the place where your fire is to be, which will be the centre of your camp, and there make a fire in the grass, and watch it while it burns. You can set the fire in several places if you please in a line *across* the direction of the wind. The fires that you set will spread in all directions until they come together, and then they will tend to advance together farther to leeward, but you must not let them run in that direction. You must whip out the blazing grass all along the line to leeward, with your two fire-whips, one in each hand. The fire will be inclined to go fast in that direction, because the wind will help it.'

'There is not much wind, anyhow,' said Hubert.

'True,' replied Mr Darricutt, 'but what there is will make the flames advance much faster to leeward, while they will creep along very slowly to

windward. If you find that you cannot stop their progress to leeward you must cry "Fire!" and I'll come and help you.'

'Is that what the two extra fire-whips are for?' asked Georgie.

'Yes,' replied Mr Darricutt, 'and you must leave them at the camp, where I can seize them at once, in case there should be any alarm of fire.'

Here Georgie began to caper about very exultantly, in his excitement. He eagerly hoped that the flames *would* spread so rapidly as to give occasion for an alarm of fire.

'After you have entirely stopped the progress of the fire to leeward,' continued Mr Darricutt, 'then all you will have to do is to watch it as it creeps along slowly to windward, and at last, when you judge that it has burned over a sufficiently large piece of ground, you can easily stop it, by whipping it out at the edges.'

After giving the boys these instructions, Mr Darricutt turned away and went back to his reading—leaving them to go on with their work, without the necessity of any further interference from him, unless something should go wrong. They were pretty sure to follow his directions implicitly, for even Hubert himself, though he had never seen Mr Darricutt before that day, and had been with him then only a very short time, had been already trained to obey him. It takes very little to train a

boy to a habit of obedience, provided that little is of the right kind.

And it was a great deal better and more satisfactory to Hubert and Georgie to have the person who had charge of them firm, decided, and even immovable in his management, so long as he was deliberate, considerate, and just, than to have him undecided and capricious, arguing and discussing questions with them, and allowing himself to be finally persuaded, against his better judgment, to yield a reluctant and moody consent to their proposals, because he had not firmness enough to stand his ground. The most agreeable government to be under for everybody, is one that is steady, decided, and firm, provided that it is considerate and just,—and the most unsatisfactory and uncomfortable one, to all concerned, is an authority that is weak and vacillating because it is hasty,—deciding first without reflection, and then easily induced to alter its decisions by arguments or importunity.

CHAPTER XXIII.

AN ALARM OF FIRE.

THE boys followed the directions which Mr Darricutt had given them very faithfully. They soon saw the reason for his recommendation that they should look for evergreen branches suitable for fire-whips, as he called them, on the margins, instead of in the interiors of the thickets, as the branches of trees never grow thick and full with foliage, except where they are open to the sun and air. In a dense wood accordingly, where everything except the very tops of the trees is in the shade, the limbs, if any grow, are thin, slender, and almost bare, and often nothing but dead sticks are found branching out from the trunk near the ground. Whereas, on the margin of that same wood, perhaps, all those limbs which branch off toward the outside, where they have free access to the sun and air, are heavy and rich with foliage, sometimes down to within a short distance of the ground.

The boys in a little time had procured the proper number of fire-whips and carried them to

the camp. The next thing to do was to find out which way the wind blew. This was not very easy, for there was very little wind in any direction. They lighted a match and tried to observe which way the smoke went; but the indications obtained by this means proved quite uncertain, for in the first place there was very little smoke produced, and in the second place, that which did arise floated about so deviously—partly on account of the eddies produced in the air by the shelter afforded by their own bodies—and it became, moreover, so entirely dissipated before it ascended high enough to be out of the influence of the eddies, that they could come to no conclusion.

'Let us get a piece of birch-bark,' said Georgie. 'That will make a good thick smoke.'

'But if we set any birch-bark on fire,' said Hubert, 'the pieces, all in a blaze, will drop on the ground and set the grass on fire in the wrong place.'

'We can be careful and not let the pieces fall,' said Georgie. 'And besides, William won't blame us if the grass gets on fire in the wrong place by accident.'

'We had better not trust to that,' said Hubert, 'but do exactly as he says.'

After some farther consultation, however, the boys concluded that by taking a single sound strip of birch-bark and winding it round the end of a

long stick, and holding it up in the air over a place where there was only bare rock, they could safely make a smoke which would enable them to determine which way the wind was. So they went into the woods to find a birch-tree. They soon succeeded. Indeed, they stripped off several pieces of bark, intending to preserve all that they did not need for determining the question of the wind, to use in kindling their fire.

The plan worked very well. Hubert made a cleft in the end of a pole and inserted one of the sheets of birch-bark in it. They then struck a light with a match, and set the bark on fire. The flame spread rapidly over it, and the heat, curling up the bark, caused it to cling more and more closely to the pole the more fiercely it burned, so that there was no danger of its falling to the ground. Besides, Hubert took pains to hold it over a place entirely bare of herbage, so that even if fire had fallen from it, no harm would have been done.

The flaming bark sent up as usual dense volumes of smoke, which, as they floated away through the air, showed very plainly which way the wind was. So the boys measured off the prescribed distance by pacing, and then prepared to set fire to the grass.

'Let *me* have the match and light it,' said Hubert.

No; let *me*,' rejoined Georgie.

It was finally agreed that they should each take a match, and then, at a given signal, that both should light a fire at the same time. They had some difficulty at first in making the fire catch in the grass. It would blaze up for a moment, and then as suddenly all die away. At length, however, a little breeze sprang up and the fire began to spread. The boys then took pieces of their birch-bark, and lighting them at the fires already kindled, laid them down, all blazing, in other places, until at length they had a place several yards in extent all in flames.

'Now,' said Georgie, 'we must get our fire-whips and stop it to leeward.'

So he threw down the remaining pieces of his bark upon a stone near by, and ran for the fir-branches. Hubert followed his example, and both the boys began at once whipping down the fire along the edge of the burning grass to leeward. The breeze, however, either stimulated at that spot by the heat of the fire, or for some other cause, began to fan the flames more and more, and the boys soon began to be greatly excited with the fun of trying to whip it out. Indeed, through the pleasure of seeing it burning, and the excitement of fighting it, they soon began to get into a great frolic, and went on whipping at random all about them, first on one side and then on the other, laughing immoderately all the time. They did not

confine themselves at all to the margin of the fire to leeward, which was all that really required any attention, but beat about on this side and on that, wherever they saw smoke or a blaze.

This continued for some time, and, of course, all this while the fire was gradually extending in all directions, and as the breeze continued to rise, they began soon to feel that they must be more in earnest if they really wished to prevent the fire from getting entirely away from them. So they began to work more vigorously, but they were still laughing so violently that they could not work to much advantage.

'We can't stop it!' said Georgie. 'Look! Look there behind you! There's another place out there! And here's another! We must cry, Fire!'

So they both began to cry, 'Fire!' as well as they could for laughing, and for the violent exertions they were making in beating about among the flames and embers.

As soon as he heard the call from the boys, Mr Darricutt laid down his book and walked toward them, moving, however, in his usual cool and deliberate manner. He took one of the two branches which had been reserved for him, and then said to the boys that they might stand a little on one side, out of the smoke, and rest themselves, while he stopped the progress of the fire.

So he went forward entirely in advance of the line of fire to leeward, and then began to whip out first one and then another of the projecting points of flame which were creeping forward in advance of the rest, leaving all the fires on that part of the ground which was already run over, to burn themselves out as they would. He met all the other advancing points as they came one after another to the front, and stopped them, and thus effectually prevented any further progress in any part. He was careful, too, to strike his blows in such a manner as to brush back the burning grass and leaves toward the ground which had already been burnt over, instead of scattering them in every direction, as the boys had done. In this way the progress of the flames in the direction toward which the wind was blowing was entirely arrested, and Mr Darricutt had nothing to do but to stand quietly by, and keep watching the margin, ready to give a little pat with his bough upon any new flame which might spring up on the line.

'That is a great deal the best way to do it,' said Georgie.

'Best for me,' said Mr Darricutt, 'but perhaps not for you.'

'I think it is the best way for anybody,' said Georgie.

'That depends upon what their object is,' said Mr Darricutt. 'Your object was to have a frolic,

and that was all right. My object was to stop the fire. Your way is the best for having a frolic, and mine the best for stopping the fire. I think that on the whole you succeeded quite as well as I did.'

CHAPTER XXIV.

A CHEMISTRY LESSON.

WHEN the fire was stopped on the leeward side, there was no difficulty in controlling it in its progress to windward. So Mr Darricutt left the boys to manage it by themselves,—telling them that they could make it a serious business, or a frolic, whichever would amuse them most,—and went back to his reading.

'Let's make it a serious business,' said Georgie, 'I'm tired of the frolic.'

Hubert agreed to this, and in a short time the boys had quite a large piece of ground burnt over, extending on every side from the place where they had determined to make the camp fire. They then proceeded to make the fire, gathering sticks from all the thickets around, and bringing them to the spot. As soon as they had got the fire kindled, they went off after more fuel, and when they came back with their load, Hubert set himself at work cutting, or rather breaking up, the sticks with his

hatchet, for many of them were too long to be used conveniently for the fire. But he did not succeed very well, for he could not hold the sticks still enough on the ground,—the only way of doing it being to press them down with his foot when cutting them. While the boys were employed in this way they heard Mr Darricutt call them. They looked toward him, and he pointed to quite a large, though short log, which was lying near some rocks at some distance from their fire.

'There is a big log out there by those rocks,' said he. 'Go and see if you can't roll it to your fire.'

'Ah, but that log won't do for us,' replied Georgie. 'It is a great deal too big.'

'Demurring,' said Mr Darricutt, quietly, and then at once resumed his reading.

'Let's go and get it,' said Hubert, speaking in an undertone to Georgie.

So the boys went off to get the log, and after a time, though with considerable difficulty, they succeeded in rolling it up near to the fire. When they began to draw near, and had stopped for a moment to rest, Mr Darricutt called to them, saying,—

'When you get it into the camp, Hubert can use one end of it for a chopping-block, and you can then have it for a seat.'

The boys looked down for a moment at the log, and then Georgie said,—

'Yes, it will be excellent to use it in that way. I did not think of that. I thought he meant that we were to put it on our fire for a back log.'

'Or for a forestick,' suggested Hubert.

'Yes, or for a forestick,' said Georgie, 'but I *knew* that would not do.'

So Georgie, as boys very often do, although he had been shown to be mistaken and in the wrong, claimed a triumph by ingeniously contriving a way of making himself out to have been in the right.

In the mean time Mr Darricutt went on reading quietly, while the boys were occupied in completing their arrangements at the fire. At length he went over to make them a visit.

'We like the log very much,' said Hubert.

'I'm glad of it,' said Mr Darricutt, 'and your fire burns very well.'

The boys assented to this, and said that they were having a very good time, and that they were very much obliged to Mr Darricutt for coming with them. He said he liked to go anywhere with boys that, like Hubert and Georgie, obeyed him implicitly in all that he directed.

'I like to go on such a campaign as this,' he added, 'when I have my troops perfectly under command.'

Mr Darricutt added, that he was having a good time, too, on his own account; for he found his

book, at the part where he was reading, very interesting indeed.

Hubert then asked him what chemistry was about. He said it was about the different kinds of substances of which all things were composed, and the changes which took place, when they were combined in different ways.

'Do you know what the difference is between chemical action and mechanical action?' asked Mr Darricutt.

The boys said they did not.

'Then I'll tell you,' said Mr Darricutt, 'and so you will have a lesson in chemistry.'

Mr Darricutt then went on to explain that when two bodies or two substances come together so as to act upon each other in any way, while yet each retained its own nature and its own properties, it was mechanical action; but when they combined in such a way as to form new substances which were of a different nature, and had different properties from those that either had before, it was chemical action.

'If you mix peas and beans together,' he said, 'in a basket or bowl, and shake or stir them so as to mingle them ever so intimately, they will be peas and beans still, without any change in their nature. It will be the same with smaller things, as, for instance, mustard-seed and poppy-seed. You may

mix them so completely that one cannot hardly tell by the eye that there were two kinds of seeds in the bowl. Still, each seed would retain its own properties unchanged. You may have the things to be mixed smaller still, as, for instance, particles of sugar and of water. These particles are so small that not even a microscope can distinguish them. But if you dissolve sugar in water the particles will not be changed at all in character; they will only be mixed. There will be a particle of sugar and a particle of water by the side of it, that is all. The sugar will be sugar, and the water will be water,—just as before,—and it is easy to get them all separated again so as to get back the sugar and the water pure as they were before they were mixed. All these are called mechanical changes. They are merely changes in the place and arrangement of the substances, and not at all a change in their nature.'

Mr Darricutt went on to explain in this way that sometimes when two substances are brought together they combine in such a manner as to change their nature entirely. If, for example, you pour water upon chalk, or upon whiting—which is a kind of chalk—in the bottom of a cup, and mix them together, nothing will be changed. You will have only particles of chalk and particles of water lying side by side in the cup. But if you pour

vinegar upon chalk, and mix them together, it will be very different. They will both change their nature entirely, or rather, new substances will be formed of quite different nature from either of them. There will be no more vinegar or chalk in the cup, but new substances very different. One of these substances will be a kind of air or gas, and will go off in little bubbles, and the rest,—that is, what remains in the cup, will not be vinegar or chalk, but something different from either.

'I mean to try it,' said Hubert.

'We'll try it together,' said Georgie.

'That will be a very good plan,' replied Mr Darricutt.

'Now, the burning of wood,' added Mr Darricutt, 'is a chemical process. The air and the wood come together in the fire, and certain substances in the air and certain others in the wood unite and form new substances entirely different. Some of these go off in the smoke, and some remain in the ashes. Now my book teaches me about all such things as those.'

'Then I think that, perhaps, I should like it,' said Hubert.

'Perhaps you would,' said Mr Darricutt. 'At any rate, I have given you a lesson in chemistry by what I have told you, and in making your fire you are making a chemical experiment. So when

you go home, and anybody asks you where you have been, and what you have been doing this afternoon, you can either tell them that you have been studying chemistry and making a chemical experiment, or that you have been down in the woods talking with me and building a fire.'

CHAPTER XXV.

A SUCCESSFUL EXPEDITION.

HE boys after this said that they were going down to a brook near by, to get some sand to cover their potatoes with in the fire, instead of ashes.

'Very well,' said Mr Darricutt. 'Only if anything detains you, then come back and report to me in about a quarter of an hour.'

'But we shall not be gone five minutes,' said Georgie. 'We are only going to get a pailful of sand to cover up our potatoes with.'

So saying, Georgie held up a small tin pail which they had brought in their basket, with some of their provisions in it, and which they were now going to take to bring their sand in.

'You may possibly find something to attract your attention and so get detained,' said Mr Darricutt. 'If so, do not remain longer than fifteen minutes, as near as you can judge, without coming to report to me.'.

So saying, Mr Darricutt returned to his seat

and to his reading, and the boys ran off down the path which led to the little brook.

Mr Darricutt was right in anticipating the possibility that the boys might find something to detain them, for ten minutes or more passed away and they did not appear.

'They have found something or other, I suppose,' said Mr Darricutt to himself; 'a bird's nest, perhaps, or some polliwogs in the water; or, perhaps, a crooked stick that they think is an eel.'

At length, at the end of about fifteen minutes, Georgie appeared at the head of the path, where it emerged from the thicket, and called out to Mr Darricutt.

'William,' said he, 'we've found a fox's hole, and we are going to dig the old fox out.'

'All right,' said Mr Darricutt.

'Can we stay longer?' asked Georgie.

'Fifteen minutes more,' said Mr Darricutt, 'and then come and report. But what are you going to do for shovels?'

'Hubert has made two very good ones,' replied Georgie, 'out of a piece of wood that he split up into thin flat pieces.'

'All right!' said Mr Darricutt.

Georgie then ran down the path again and disappeared.

After the lapse of some little time he appeared again. As soon as he came within hearing he

asked whether it was a quarter of an hour yet. Mr Darricutt said he thought it was about that, and asked him if they had dug out the fox.

'No,' said Georgie. 'We found after we had dug in a little way that it was an old hole, and so we gave it up. But we have made us a splendid Indian wigwam, and wish that you would come down and see it.'

'That I'll do with pleasure,' said Mr Darricutt. 'I should like to see an Indian wigwam very much.'

So he rose from his seat and accompanied Georgie down to the brook. There they found what Georgie called the wigwam, which was a simple booth made by leaning poles and boughs of trees against the upturned roots of a fallen tree.

'We wanted very much to make a fire in our wigwam,' said Georgie, 'but we concluded that you would not be willing.'

'That was a very sensible conclusion that you came to,' said Mr Darricutt. 'But it is a very nice wigwam. I don't wonder that you would have liked a fire in it. Very likely that when I was as old as you, Georgie, if I had built such a wigwam, and had had any matches, I should have made a fire in it at once, without stopping to think of the possible consequences. But you are a more sensible boy it seems than I was at your age.'

'It was Hubert who said it would not do,' said

Georgie, not willing to take to himself credit that did not belong to him.

'It is generous in you to say so,' replied Mr Darricutt, 'but still I believe you would have had sense enough to see it yourself, if he had not told you.'

'I suppose our fire at the camp is all out before this time,' said Hubert.

'No,' replied Mr Darricutt. 'I put it together myself a little while ago, so that you will find it burning.'

This is what Mr Darricutt had done. When the boys built the fire, they laid a great many sticks upon it that were so long that the ends extended out quite far on each side. At first Hubert tried to cut all these long sticks up into short ones, using the end of the log for a chopping-block. This he could do very well with the sticks that were somewhat decayed, and consequently brittle. But those which were sound and yet dry, were very hard to cut; for wood, in being dried, shrinks and becomes condensed, which makes it much harder and tougher than it was before. So Hubert soon gave up the attempt to cut the sticks and poles of this kind, but laid them at full length on the fire, the ends extending equally in both directions.

After a while, of course, the fire burned out the middle of the pile so made, thus dividing all the sticks in two: and it would then have gone out,

had it not been that Mr Darricutt had taken up the ends, and laid them over the hot coals in the centre again, thus supplying the fire with a new stock of fuel.

After Mr Darricutt had seen the wigwam and was about to return, the boys, finding that the pleasure to be derived from a wigwam consisted in the making of it, and that there was not much to be done with it after it was once made, concluded to go back with Mr Darricutt to the fire. And when they reached the fire, and had pushed the sticks together a little, and made a fresh blaze, and talked with Mr Darricutt a little more, they concluded that they did not care much about the cooking after all. Mr Darricutt said it was time for him to go home, but that they might stay and play at their fire, or go with him, just as they pleased. It was safe for them to stay and keep up their fire, he said, since all the ground near it had been burnt over.

The boys concluded that they would go home. So they pulled the fire to pieces and extinguished the brands by dashing upon them handfuls of the wet sand which they had brought up from the brook in the pail, and then replacing their provisions in the pail and in the basket, they set out together on their return.

'This expedition has been a failure,' said Georgie.

'On the contrary,' replied Mr Darricutt, 'it has been a great success. We did not come out particularly to roast potatoes, but for exercise and recreation, and to have a good time. I am sure I've had a good time.'

'And I, too,' said Hubert.

'And I, too,' said Georgie.

CHAPTER XXVI.

CONCLUSION.

I HOPE that those boys who may read this book will take notice of and understand the principles of management by which Mr Darricutt was governed in the treatment of Hubert and Georgie on this occasion, and will remember them, so that when they grow up to be eighteen or twenty years of age, and have younger boys put temporarily under their charge, they may act in the same way. These principles were two.

1. Great strictness and firmness in requiring the most prompt and unquestioning obedience to your commands in all cases requiring the exercise of authority, and at the same time,

2. Extreme indulgence and freedom from restraint, in all cases where the exercise of authority is *not* required.

Many persons situated as he was, when the boys made objections to anything which he com-

manded, would have answered the objections, and begun to argue the case with them, instead of simply saying, 'Demurring,' as he did,—thus refusing to allow them to make any objections at all. On the other hand, when the boys proposed to dig out the fox, some persons would have attempted to dissuade them from the attempt by telling them that it was foolish to do it,—that there was probably no fox there, and that if there was, it was not at all likely that they could dig him out with such shovels as Hubert could hew out of a piece of wood with his hatchet,—or that they had come down there to roast some potatoes and apples at the fire, and that they evinced only fickleness in leaving one undertaking unfinished and engaging in something else,—as if changing from one thing to another, under the impulse of momentary feeling—or caprice, if you choose to call it so—was not one of the special charms of playing.

You must remember when you grow up, that as grown people now are not good judges of what will amuse you, so you, when you are grown, will not be able to judge well as to what will amuse them. You must, accordingly, give them the largest possible indulgence in respect even to their caprices in playing, so long as what they wish to do is not hurtful to themselves or others; but then you must be firm and immovable—though in kind

and gentle ways—in requiring immediate and strict obedience to your authority whenever you feel it necessary to exercise it. Issue orders and prohibitions as little as possible—but when you do command or forbid, insist on being obeyed.

Under the influence to which Hubert was subjected in Juno's school and in his hours of play with Georgie, he soon recovered from the discouragement which had weighed upon him in respect to his studies, when he first came to live with his aunt. His aunt observed the wonderful improvement which he made, but she attributed it altogether to the influence of her counsels and instructions, and to the various incidental benefits resulting from his residing in her family. She candidly admitted, however, that Juno was, on the whole, quite a nice person, and succeeded very well in teaching the elementary branches.

The reader, in closing the book, after finishing the perusal of it, may say to himself that the Juno of these volumes is a fictitious character. In one sense she is, and in another she is not. There are a great many Junos in the humble walks of real life, all patiently and faithfully fulfilling their duties in the manner and on the principles here explained—and yet as little understood and appreciated by

many of those around them, as their representative in these volumes was by Hubert's aunt Cornelia. But they do not feel much the want of this consideration. They *have* their reward.

THE END.

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